```
Regult
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                       იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9:
                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
  2061
2061
2013.8
1773.8
820
820
773.4
769.8
701.6
662.8
662.8
666.2
479.4
459
365.4
 100.0 2061

100.0 5251

86.1 2660

86.1 14159

39.8 4740

37.5 39314

37.4 138203

34.0 29132

32.2 110000

29.3 29132

32.2 300750

29.3 4496

22.3 4496

22.3 4496

17.7 2888

17.7 2888
                                                                                                                                                                                                                                                                               Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       October 4, 2005, 19:00:45 ; Search time 9467.53 Seconds (without alignments) 10548.289 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4708233 seqs, 24227607955 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 atgcgcacgcttctgatcga.....ccgtggcgggcgcccgatga 2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-1
2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenEmbl: *
                                                                                                                                                                                                                                                                                                                                                                                                       gb_pat:
gb_ph:*
gb_pl:*
gb_pr:*
gb_ro:*
gb_ro:*
gb_sts:*
gb_w::*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  om: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۰
۲.
                                                                                                                                                                                                                                                                                  В
 STH575648
AP006618 17
AP005025
AP005217
AP005217
A48326
AR198356
A48323
AR198353
AJ586576
                                                                                                                           BD178313
BD093914
AB116234
SVU21728
AF262220
AR198361
SPU60417
STMPABA
SGR300302
AY310323
                                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9416466
BD178313 Transform
BD19314 Transform
AB116234 Streptomy
U21728 Streptomy
U21728 Streptomy
U21728 Streptomy
AR198361 Sequence
M93058 Streptomy
AR198361 Streptomy
AR300302 Streptomy
AV310323 Streptomy
AV310323 Streptomy
AV310323 Streptomy
AV310325 Streptomy
AV310525 Streptomy
AF005025 Streptomy
AR198365 Sequence
AR198356 Sequence
AR198353 Sequence
AR198353 Sequence
AR198353 Sequence
AR198353 Sequence
                                                                                                                                                                                                                                                                                Description
```

								ი		ი														ი	ი
45	44	43	42	41	40	39	38	37	36	35	34	ω ω	32	31	30	29	28	27	26	25	24	23	22	21	20
266.8	266.8	266.8	266.8	266.8	266.8	266.8	266.8	267.2	268.2	270	272.2	272.2	272.2	272.2	272.2	278	280.4	282.4	294.6	301.4	307.4	316	317.6	323	335.6
12.9 349980 6		12.9 333150 1	_	.9 1	1983	12.9 1860 6			0	.1 15	13.2 645 6	.2	.2			5	o	13.7 110000 1	4.3	4.6	14.9 110000 1	15.3 26309 6	15.4 110000 1	15.7 276800 1	16.3 321250 1
AX127146	BX927151	AP005277	AX764213	AX064419	AX064177	AX121195	BD163312	AE017180_26	AP003000	AE004601	AR442765	AR124158	AR099273	AR069877	A37839	. AP006840_15	. SME591791	AE017282_30	HLFTRP	AP005045	AE016822 12	CQ363747	AE017283_21	. SCO939115	SC0939111
AX127146 Sequence	BX927151 Corynebac	AP005277 Corynebac	AX764213 Sequence	AX064419 Sequence	AX064177 Sequence	AX121195 Sequence	BD163312 Novel pol	Continuation (27 o	AP003000 Mesorhizo	AE004601 Pseudomon	AR442765 Sequence	AR124158 Sequence	AR099273 Sequence	AR069877 Sequence	A37839 Sequence 9	Continuation (16 o	AL591791 Sinorhizo	Continuation (31 o	M83788 Haloferax v	AP005045 Streptomy	Continuation (13 o	CQ363747 Sequence	Continuation (22 o	AL939115 Streptomy	AL939111 Streptomy

ALIGNMENTS

Query Match	FEATURES source	JOURNAL COMMENT	DEFINITION ACCESSION VERSION KEYWORDS SOURCE ORGANISM REFERENCE AUTHORS TITLE	RESULT 1 BD178313
ch 100.0%; Score 2061; DB 6; Length 2061;	PI MURAKAMI PC C12N15/61,C12N1/15,C12P17/14//(C12N1/15,C12R1:645),(C12P17/14, PC C12R1:645) PC C12R1:645) PC C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12P17/14, PC C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12P17/14, PC C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12P17/14, PC C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12P17/14, PC C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12P17/14, PC C12R1:645),(C12P17/14//(C12N1/15,C12R1:645),(C12	PALENE: WO 02077244-A 1 03-OCT-2002; MEIJI SEIKA KAISHA LTD, KOJI YANAI, NAOMI SUMIDA, MANABU WATANABE, TATSUKI MORIYA, TAKESHI MURAKAMI OS Streptomyces venezuelae PN WO 02077244-A/1 PD 03-OCT-2002 PP 22-MAR-2002 WO 2002JP002782 PF 22-MAR-2001 JP 01P 082227 PR 22-MAR-2001 JP 01P 082227 PR 22-MAR-2001 JP 01P 082227 PR 22-MAR-2001 JP 01P 08227	Transformant producing PF1022 substance and process for producing the same and novel biosynthetic gene. B01783131 B01783131 B01783131 B01783131 GI:30015578 WO 02077244-A/1. Streptomyces venezuelae Bacteria, Actinobacteria, Actinobacteridae, Actinomycetales, Streptomyces venezuelae Bacteria, Actinobacteria, Bireptomyces. 1 (bases 1 to 2061) Yanai, K., Sumida, N., Watanabe, M., Moriya, T. and Murakami, T. Transformant producing PF1022 substance and process for producing the same and novel biosynthetic gene	

Ş	g 49	D Q	D Qy	Db Qy	용성	В 8	B 8	g Qy	Db Qy	Db Qy	Db Qy	유 성	D Qy	B 6	Db Qy	D Q	B 6	Best Match
1021 GCCGACCGCGCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTGCTGCTGGCCCTCGAC 1080	961 GCGGAGACCACCGGCGACCCGGCGCCCGGCACCCCGACGCCGC	901 CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG 960	841 CGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGCTCCCCGTCGCC 900	781 TACCGCGTCGCCGACGGCTCTCCGTCCGCGGCTCCGACGGCACCACGACCGGACGGA	721 GGCGCCTCGCGCTTCTCCTTCCTCGGCGACGACCGCCGGCCCGCTCGCCGAGTACCTCACC 780	661 CGCGGCTGCCCGGCGAGGGCACCACGTTCTGGCTGGACAGCAGCTCCGTCCTCGAA 720	601 TCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCCGGCGCGCGC	541 ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGCGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGCCCACGGGCCCACGGGCCCACGGGCCCACGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGGCCCACGGGCCACGGGCACGGGGCCCACGACG	481 CCGCTGTGGGGCCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC 540	421 CTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCCGCACACGCGCGAGAAG 480	361 CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCGACCGA	301 CCCATGCACGGGCTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC 360	241 TGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCCGAACCGTCGGCCTCGGCCCCGGAA 300	181 CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCTCCGCCGTC 240	121 CCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCGACCGGGAA 180	61 GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGTCGCCAACGACGCCGACTGGTCGCGGCTG 120	1 ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC 60	Best Local Similarity 100.0%; Pred. No. 2.2e-158; Matches 2061; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
RESULT 2 BD093914	B &	B &	} B &	Db Qy	B &) B Q	DЬ	B &	? B &) B &	\$ B &	B 5	Db Qy	95 C	D &	S B &	B 1	Ov Db
.4	2041 GCCGTGGCGGGCCGATGA 2061	BI GAGGAGITCACCGAGACCGTGG	21 GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGGGATCGTGTCCCCTCTCCGACCAGGAG 198 21 GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGGGGGATCGTGTCCCTCTCCGACCAGGAG 198 21 GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGGGGGATCGTGTCCCTCTCCGACCAGGAG 198	61 GGATGGTTCGCCCTCAGCGGCGCCCGCCCCAGCATCGTATCCGCACCCATCGTGCTG 192	O1 ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTC 186	41 GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGCTCCATGACCGGCGCGCCCCAAGAAGCGC 180	81	21 AACAGGETCTGCGCAATCGGCTCCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC 168 21 AACAGCGTCTGCGCGATCGGCTCCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC 168	GECCGGGAGAAGGACCGGGCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC	GESACCCGCCCCGGGGCGGGACCGGGGAGGAGGAGGGGCCCCCC	41 TGGCCGAGCGGTTCCTCACGATCGGCGCGCCGCGGCGGCGTCCAAGCCCATCAAG 150	B1 ATCAGCCCCGTCCCGTACGGCCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCC 14	21 AACATGGTCAACGGGCCGACGGAGGCGACGGCCCTGCCGCTGCGCGCCC 138	61 CGCATCGACGAGTGCCTCAAGGAGATCCGCCAACGGCGAGTCGTACGAGATCTGCCTGACC		1 GROUPE GROUPE CONTROL CONTRO		21

Db 421 CTCGAACCCCTCGCCTGGAG	421	Qy 361 CCCTCGCCGTTCACCGCCGT	Qy 301 CCCATGCACGGCCGGGTCTCC	Oy 241 TGCCTCGGCCACCAGGCCATO	Qy 181 CGGGACTTCGGAATCAGCCGG	Oy 121 CCCGTCGAGGACTTCGACGCC	Oy 61 GGCGAGGCCACCGGGCAACCC Db 61 GGCGAGGCCACCGGGCAACCC	Oy 1 ATGCGCACGCTTCTGATCGAC	y Match Local Similarity 100.0%; hes 2061; Conservative 0	/org /mol /db_	Key CDS Location/Qua	PI MIYAMOTO, PI NAOKI MIDO,TAKESHI MURAKAMI PC C12N15/09,C12N5/10,C12P21/02, CC	PD 05-APR-2001 PF 29-SEP-2000 WO 201 PR 29-SEP-1999 UP 991 PI KOJI YANAI, KAORU (and Murakami, T. Transformants that proc functional group(s) and JOURNAL Patent: WO 0123542-A 1	Bacteria; Actinobacter: Streptomycineae; Streptomycineae; Streptomycineae; Streptomycineae; Lo 261) REFERENCE 1 (Dases I to 261) AUTHORS Yanai,K., Okakura,K.,	3	N Transformants that functional group(s) BD093914
CTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG 4		CCTCGCCGTTCACCGCCGTACCACCTACCACCTACCACCTACCACCTACCACCTACCACC	CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCCGGCGAGGACGTCTTCCGGGGGCCTC 3	TGCCTCGGCCACCAGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAA 3	CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC 2	CCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCGGACCGGGAA 1	GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGCCAACGACGCCGACTGGTCGCGGCTG 1	ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC (Score 2061; DB 6; Length 2061; Pred. No. 2.2e-158; , Mismatches 0; Indels 0; Gaps	reptomyces venezuelae" nomic DNA" Dn:54571"	Location/Qualifiers (1)(2058). lifiers	MURAKAMI , C12P21/02, C07K11/00// (C12P2	9R-2001 59-2000 WO 2000JP006783 59-1999 JP 99P 276314 YANAI KAORU OKAKURA, SHOHEI YASUDA, MANABU WATANABE, KOICHI	MEIJI SEIKA KAISHA LTD,KÖJI YANAI,KAORU OKAKURA,SHOHEI YASUDA, MANABU WATANABE,KOICHI MIYAMOTO,NAOKI MIDO,TAKESHI MURAKAMI OS Streptomyces venezuelae PN WO 0123542-A/1	duce secondary metabolites modified by a novel biosynthesis genes	Mido,	BD093914.1 GI:22639502 WO 0123542-A/1. Streptomyces venezuelae Streptomyces venezuelae	2061 bp DNA linear PAT 27-AUG-2002 produce secondary metabolites modified by a and novel biosynthesis genes.
80 YOY		420 Cy	360 Db	300 Db	240 Ey 240 Db	180 Qy 180 Db	120 Ay 120 Db	60 Db	°; ₽ Q	Qy Db	QY Db	Qy Db	Qy Db	dg Qy	dd dy	Qy Db	dd Vy	002 Qy
1501 GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCGCCACCTGGCCACCTGACCTCACACACA	1501 GGGACCCGCCCCCGGGGGCGCACCGCGGAGGAGGACGAGCGGCCTCCGCGCCCGACCTGGC	1441 TOGCCGAGGGTTCCTCACGATCGGCGCCGACGGCGTCGAGTCCAAGCCCATCAAG				1201 GCGGCGGCCTGCCCCCTGGCCCCGCGCGCGCCACGACAAGGACGCCTACCTCAAG				961 GCGGAGACCACCGGCGACCCCGCGCACCCGCGCACCCCGACGCCCCCGCGTTCCTCTTC	901 CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG 	841 CGGCGCCCTTCTTCAACTACCTGGAGGAGCTCGAACGCCGACGGGTCCCCGTCGCC	781 TACCGCGTCGCCGACGGCGTCGTCTCCGTCCGGCGCTCCGACGGCACCACGACCCGGACG	721 GGCGCCTCGCGCTTCCTCGGCGACGACCGCGGCCGCCTCGCCGAGTACCTCACC	661 CGCGGCTGCCTCCCCGGCGAGGGCACCACGTTCTGGCTGG		541 ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGGCCGACGGGCCACGGGGCCACGACG	481 CCGCTGTGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC

```
JOURNAL
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 3
AB116234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1681
                                                                                                                                                                                                      Direct Submission
Submitted (01-AUG-2003) Koji Yanai, Meiji Seika Kaisha, Microbiological Resources and Technology Laboratories;
Odawara-shi, Kanagawa 2500852, Japan
(E-mail:koji yanai@meiji.co.jp, Tel:81-465-37-5106,
Fax:81-465-37-6397)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AB116234 DIA DIA DA LINEAR BCT 03-JUI Streptomyces venezuelae papA, papC, papB, ORFIV genes for 4-amino-4-deoxychorismate synthase, 4-amino-4-deoxyprephenate dehydrogenase, 4-amino-4-deoxychorismate mutase, hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murakami,T.
Para-position derivatives of fungal anthelmintic cyclodepsipeptides
engineered with Streptomyces venezuelae antibiotic biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptomyces venezuelae
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                             Murakami,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                            Yanai,K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AB116234.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AB116234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Yanai, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5184904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGCGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       eccereceeeececearea 2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGGACCGCCTGCGGCCCCGGCACCAGCACC 1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGGAGAACGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGGGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGCGCTCCATGACCGGCGCGCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCCTGCGTACGCGCCCTTCCCCGGCGCCCCATGACCGGCGCGCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGCCCGTGCACCAGCTGGTCGACCATCCGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC 1680
                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 5251)
nai,K., Sumida,N., Okakura,K., Moriya,T., Watanabe,M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biotechnol. 22 (7),
      /organism="Streptomyces venezuelae"
/mol_type="genomic DNA"
/db_xref="taxon:54571"
651...2711
                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sumida, N., Okakura, K., Moriya, T., Watanabe, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GI:47846865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        848-855 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCT 03-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1680
                                                                                                   ORIGIN
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sgo
                                                                                                                                     /Godon_start=1
/evidence=not_experimental
/transl_table=11
/transl_table=11
/product='hypothetical protein"
/product='hypothetical protein"
/protein_id="BAD21143.1"
/db_xref="G1:47846869"
/translation="WHATTILAALTGRTAAQQPYWPDPDAVDTVERELAGLPVLTPED
/translation="WHATTILAALTGRTAAQQPYWPDPDAVDTVERELAGLPVLTPED
/translation="WHATTILAALTGRTAAQQPYWPDPDAVDTVERELAGLPVLTPED
/translation="WHATTILAALTGRTAAQQPYWPDPDAVDTVEREARTPEPRRLLTA
YTCSQIVLDEIRRSWSGRPVLERVYTSHELLLLPYERELLLLPXERELLTA
YTCSQIVLDEIRRSWSGRPVLERVYTSHELLLLPXERELLLPXEREARTYSGSAHFGWIG
ERTRREDGAHVALAQAVHNPVGVKLGPTVSPEDAVALSRSLNPEGVPGRLTFIVRFGA
KEVDELLPPVVRAVARHGAPVVMLCDPMHGNGLKLAGHKTRLIEPMRAETAAFVETLR
EHGQWPAGLHLELTPDPVTECVSELDRPPRFTDYRSTCDPRLNPEQSADMVTHFLSLL
"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="ORFIV"
4065. .5243
/gene="ORFIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="papB"
3673. .3984
/gene="papB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="mrtilidnydsfthnifqyigeatgqppvvvpndadwsrlpved fpdaivvspeggsdreeded.

pdaivvspeggsdreedegisraltdsglpvigvcighqcighqcpq
HGRVSEVHTGEDVFRGLPSFTAWRYHSLARTDLPDELEDLAWSDDGVVWGLHREE
PLWGVQFHPESIGSDFGREIMANFRDLALAHHRARRHGADSPYELHVRRVDLPDAEE
VRRGCLPGEGTTFWLDSSSVLBGASRFSFLGDDRGPLAEYLTYRVADGVVSVRGSDGT
TTRTRPFFWLLEGQLERRRVPVAPBELPFERNLGYUGYLGFLKAETTGDPAHRSPHP
DAAFLFADRAIALDHQEGCCYLLALDRRGHDDGARAWLRETAETLTGLAVRAPAEPTP
DAAFLFADRAIALDHQEGCCYLLALDRRGHDDGARAWLRETAETLTGLAVRAPAEPTP
DAAFLFADRAIALDHQEGCCYLLALDRRGHDDGARAWLRETAETLTGLAVRAPAEPTP
DAAFLFADRAIALDHQEGCCYLLALDRRGHDDGARAWLRETAETLTGGLAVRAPAEPTP
DAAFLFADRAIALDHQEGCCYLLARDINGVLKSILBGEYETCLTIMWTAFTEAT
ALPLYSALRAISPVPYGALLEFPELSVLSASBERFLTIGADGGVESKPIKGTRPRGGT
AEEDERLRADLAGREKDRAENIMIVDLWRNDLWSVCALGSVHYPELFEGTYAFVHQL
VSTIRGHLRFGTSTAACVRAAFPGGSWTGAFKKRTMEIIDRLEGEBRGVYGGALGWFA
VSTIRGHLRFGTSTAACVRAAFPGGSWTGAFKKRTMEIDRLEGEBRGVYGGALGWFA
VSTIRGHLRFGTSTAACVRAAFPGGSWTGAFKKRTMEIDRLEGEBRGVYGGALGWFA
VSTIRGHLRFGTSTAACVRAAFPGGSWTGAFKKRTMEIDRLEGEBRGVYGGALGWFA
VSTIRGHLRFGTSTAACVRAAFPGGSWTGAFKKRTMEIDRLEGEBRGVYGGALGWFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GMAAELAAHAPGVQHVGLNPMFAPAAGMTGRPVAAVVTRDGPGVTALLRLVEGGGGRP
VRLTAEEHDRTTAATQALTHAVLLSFGLALARLGVDVRALAATAPPPHQVLLALLARV
LGGSPEVYGDIQRSNPRAASARRALAEALRSFAALVGDDPDRADAPGRADAPGHPGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
/product="4-amino-4-deoxyprephenate dehydrogenase"
/protein_id="BAD21141.1"
/db_xref="G1:47846867"
/db_xref="G1:47846867"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPD
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPD
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPD
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPD"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPT"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPT"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPT"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPT"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPT"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPT"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPGRPT"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPGRPT"
/translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="papC"
2708. .3676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4065.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/evidence=experimental
/transl_table=11
/product="4-amino-4-deoxychorismate mutase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3673. .3984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2708. .3676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DGAGNLDGVFGELRRLMGPELAAGQDHCQELFRTLHRTDDEGEKDR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein_id="BAD21142.1"
/db_xref="GI:47846868"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
/product="4-amino-4-deoxychorismate/protein_ide"BAD21140.1"
/db_xref="GI:47846866"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="papA"
651. .2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation="MTEQNELQRLRAELDALDGTLLDTVRRRIDLGVRIARYKSRHGV"
MMQPGRVSLVKDRAARYAADHGLDESFLVNLYDVIITEMCKVEDLVMSRESLTAEDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1/evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene="papC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     lsgaadlsivirtivladgqaefgvggaivslsdqeeeftetvvkaramvtaldgsav
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="papA"
100.0%;
Score 2061; DB 1;
Pred. No. 1.5e-158;
                              DB
                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  synthase"
```

유 성

망

음 성

8 8 8 8

B & B &

ORIGIN B6.1%; Score 1773.8; DB 1; Length 2660; Best Local Similarity 92.8%; pred. No. 3.2e-135; Matches 1913; Conservative 0; Mismatches 97; Indels 51; Gaps 3; OY OY ORIGIN ORI	/codon start=1 /transI_table=11 /transI_table=11 /producT="p-aminobenzoic acid synthase" /protein_id="p-aminobenzoic acid synthase" /db_xref="pd:-pd-438" /db_xref="pd:-pd-438" /transIation="martLiIDNyDsFTONLFQYIGEATGQPPVVPNDADWSRLPLEDF /transIation="martLiIDNyDsFTONLFQYIGGLAVLGHADWSDVVPNGLRHEEKPLMGYQFP PESIGSDFGREIMANFROLALAHHRARDAADWGYELHVRRVUVLPDAEFURAACIP EGATFWLDSSSYLEGASPFSFIGDDRGPLABYLTYRYADGYVSGSDGTTRDAATI FSYLEEQLEPPAGPVAPDLPEFENUGYVGYLGYLATUTYRYADFAPAPAPAPAPAPAPAPAPAPAPAPAPAPAPAPAPAPA		COMMENT On Nov 21, 1996 this sequence version replaced gi:1680040. FEATURES Location/Qualifiers 1. 2660 /organism="Streptomyces venezuelae" /mol_type="genomic DNA" /strain="ISP520" /db_xref="taxon:54571" cl. 507 /note="NRF1"	ION Streptomy complete ON U21728.1 Streptomy ISM Streptomy Streptomy Streptomy Streptomy Streptomy A role fo venezuela AL Microbiol NE 96262706 ED 8704974 CE 2 (bases ED 8704974 CE Streptomy AL Submitted Nove Scot
Db 1587 GCGGAGACCACGGCGACCCCGAGACCCCGACCCCGAGACCCCCGAGACCCCCGAGACCCCCGAGACCCCCGAGACCCCCGAGACCCCCGAGACCCCCC	1347 GGGGCTCGCGGTTCTCCTTCCTTGGGGACGACGGCCGGCTCGAGTACCTCACC 1 781 TACCGCGTCGCCGACGGCGTCGTCTCCGTCCGGCGCTCCGACGACCACGACCACGACCCGAACC 781 TACCGCGTCGCCGACGGCGTCTCCGTCCGGCGCTCCGACGGCACCACGACCCGGACG 8	1167 ATGGCCAACTTCGCCACGGCCACCACGGGCACGGCCACGGGCCACGGGGCCGACGGGCCGACGGGCCGACGGGCCGACGGGCCGACGGGCCGACGGGCCGACGGGCCGACGGGCCGACGGCCGACGGGCCGACGGGCCGACGGGCCGACGGGCCGACGGGGCCGACGGGGCCGACGGGGCCGACGGGGCCGACGGGGGG	421 CTCGAACCCCTCGCCTGGACGACGACGACGGGTCGTCATGGGCCTGCGGCACGAGAAG	Oy 121 CCCGTCGAGGACTTCGACGCGATCGTGTCCCCGGGCCCCGGCCCGACCGGGAA 180

'

1355 Oxford

1355 Oxford

```
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                             LOCUS
DEFINITION
                                                                                                                                                                                                                       RESULT 5
AF262220
                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                     1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1441
                                                                                                                                                                                                                                                                                                          2640
                                                                                                                                                                                                                                                                                                                                                    2041
                                                                                                                                                                                                                                                                                                                                                                                              2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1879
Streptomyces venezuelae
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                   Streptomyces venezuelae partial sequence. AF262220
                                                                      Streptomyces venezuelae
                                                                                                                  AF262220.2
                                                                                                                                                                                                                                                                                                                                    GCCGTGGCGGGCGCCCGATGA
                                                                                                                                                                                                                                                                                                                                                                                           GAGGAGTTCAGGCAGACCGTGGTCAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                               GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGATGGTTCGCCCTCAGCGGCGCCGCCGCCGCCTCAGCATCCGCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCCTGCGTACGCGCCGCCTTCCCCCGGCGGCTCCATGACCGGCGCGCCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC 1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGACGGCCGAGTTCGGCGTCGGCGGGGGGGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGGAGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAGTGGCGGGCGCCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGCGCGTCTTACCCGGGGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGCGCCCATGACCGGCGCGCCCAAGAAGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACAGCGTCTGCGCGATCGGCCCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC 1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC 1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGTCGAGTCCAAGCCCATCAAG 1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCAGCCCCGTCCCGTCTGGCGCCCTGCTCGAGTTCCCCGAGCTGTCGGTGCTCAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCC 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AACATGGTCACCGCGCCGACCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCCGC 1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACATGGTCACCGCCGACCGAACCGAACCGCCCTGCCGCTCTACTCCGCGCTGCGGCC 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGCGGCCGGCTTCGGCCCCTGGCCCGCCGCCGCCACGACAAGGACGCCTACCTCAAG 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGGCGGCCGGCTTCGGCCTCGCGCACGCCACGACAAGGACGCCT----- 1878
                                                                                                                  GI:14290414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCGCTCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC 1919
                                                                                                                                                                                                   14159
                                                                                                                                                                           chloramphenicol biosynthetic
                                                                                                                                                                                                                                                                                                                                                  2061
                                                                                                                                                                                                   đđ
                                                                                                                                                                                                   DNA
                                                                                                                                                                                                   linear
                                                                                                                                                                                                   BCT 09-JAN-2002
                                                                                                                                                                           gene cluster,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1800
                                                                                                                                                                                                                                                                                                                                                                                                                                   2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2339
                                                                                                                                                                                                                                                                                                                                                                                           2639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REMARK
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                          misc_feature
                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (01-MAY-2000) Biology, St. Halifax, NS B3H 4J1, Canada 3 (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                He,J., Magarvey,N., Piraee,M. and Vining,L.C.
The gene cluster for chloramphenicol biosynthesis in Streptomyces
venezuelae ISP5230 includes novel shikimate pathway homologues and
a monomodular non-ribosomal peptide synthetase gene
Microbiology 147 (Pt 10), 2817-2829 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               St, Halifax, NS B3H 4J1, Canada
Sequence update by submitter
On Jun 5, 2001 this sequence version replaced
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (05-JUN-2001) Biology, ualifax. NS B3H 4J1, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      He,J., Magarvey,N.A. and Vining,L.C. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             He,J., Magarvey,N.A. and Vining,L.C. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1577160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 14159)
                                                                                                    /protein_id="AAG21975.2"
//protein_id="AAG21975.2"
//db_xref="GI:14127897"
//db_xref="GI:14127897"
//translation="MELPDLLTDLFRRHRGRTALRTAGRTWTYEELDRVTSALARRID
AECPAGRAVL/VAGEHYAEAVWALAAWRSHAVHTPMNPGLPADRFEEPARVADAALLV
CFEREALLVRGEKAGLEALYAGDVGWPTDPARAPADGTADEPARSRVANYSIFTSGGTGD
PKLVDVGHGGLLNLCRSLRRLLDİTPDDQVLHFASLSFDASVSEILGTLYAGATLVVP
VRDQASWLGSVSRHLAAHGCDLAMLSPSVYARLDEAARSRIRKVEFCGEALGEGSYDK
AARYSRVFNAYGPTEATVCFSLABLTYSYTPSIGTFVUGGFRAYVRDPDSGDHATACTGE
LVIVGDGVALGYAGGSPAENEVFGTVDGSPAYATGDVVSLSDDGELTYLGRIDEQIKR
LGHRVNLAHVGSTLSRHLGREVALVRODATILLVTAADGEATESLAMARIRDLVEVWE
APDRLVLVDALPLTSGGKVDRSALRELLASPAGAPHGCTBGBDAELRRVLDVTVAVL
GOEIGPETSIFDAGGSSLAMIQIQVKLSDAYGEEAVBADAPAAMDYDFAPAAFLRHLRG
EAVAPAEASAVDTLLRRVETERDALRAELPLLARDTRHEPVFGAADGDREVLLTGASGF
IGGHYLDRLLAAGRPVLVSTGDPDGVLTGHATRFGRQAADALARFARVADFARVG
RRGPVVDAVHCGYQVNHLLPLDSHLSGSVRNTALVVRAAAALGARSFAFLSAASAG
ADFLPLSAATLTAVGDPYSRSKLISESYNVTLAVLGCAVSHYRRGLYVGHRPEDRHL
KDDWFTALLETARRVGAMPRLSGHVPVCDVGTLADTLLRRFDANPGTADGASRTPDSR
SAVVVHRTYALDELLRHTGLTEADVLAPAAMFERVRDGGEVPAPLLAAMQAALSGFGW
PSAHREVDHDILGRLLGTPFOFAGDRPERTGTTSRGDERRRPRADTALTGTEP"

1GEHYLLSTARRVGAMPRLSGHVPVCDVGTTGRFRFRPDANPGTADGASRTPDSR
SAVVHRTYALDELLRHTGLTEADVLAPAAMFERVRDGGEVPAPLLAAMQAALSGFGW
PSAHREVDHDILGRLLGTPFOFAGDRPERTGTTSRGPERRRPADTALTGTEP"

1GEHYLLSTARRVGAMPRLSGHVPVCDVGTTSRGPERRRPADTALTGTEP"

1GEHYLSTAMAGALSGFW
                            /note="Region: 3939. .3986
                                                                      /note="Region: 3708. .3746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="Cmlg"
/product="Cmlg"
/product="Cmlg"
/prote-in_id="AAC21974.1"
/db_xref="G1:07016944"
/translation="MTAGSPGPAGRTFLRPRALAVRDIHSFLADLGMDCDVNPCTAFV
/translation="MTAGSPGPAGRTFLRPRALADLVVVTLDPRPGPVEGGPAELAD
LVTAXINSRFLRIDEAVRLAYMRHTDGEYLVFVKFSHLIVDLADVVDLLRQITAHLRG
LVTAXINSRFLRIDEAVRLAYMRHTDGEYLVFVKFSHLIVDLADVAGKGIFISASVEEM-
DTPPGRIGSRYRHHARTVGQYTALPAADPAEVTRALGELPVPGRKGIFISASVEEM-
PLREGVTFDELLSAVTGVLLPALGGGLVLQYFYSRWEFATKGGYYYEIKPLVVRPGLE-
PLREGVTFDELLSAVTGVLLPALGGGLVLQYFYSRWEFATKGGYYYEIKPLVVRPGLE-
PLREGVTFDELLSAVTGVLLPALGGGLVLQYFYSRWEFATKGGYYYEIKPLVVRPGLE-
PROMITE STATEMAGESLGRETMSDLDAFARAFTSGRMPRVVVSDTTFMRPEPDRWRW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="non-ribosomal peptide synthetase;
reductase-like domains near C-terminus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="CmlH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VPVRSARVFEDLKFLADRSWPGPPLLRMQYKRGFLSPGAAADVLDGLKQRIGASGGTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /map="adjacent to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Streptomyces
/mol_type="genomic DNA"
/strain="ISP5230"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            function="essential for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .14159
      adenylation
                                                adenylation
                                                                                       adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pabAB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       venezuelae'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dalhousie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Dalhousie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            chloramphenicol biosynthesis"
      domain
                                              domain
                                                                                       domain
                                                                                          A1 =
                                                A2 -
        A3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          University,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  University,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gi:10716943
```

7	A 720	Qy 601 TCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCCGGACGCCGAAGACGTACGC 660	OY 541 ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGGGCCCACGAGGGGCCGAC 600	QY 481 CCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCTACTGGCCGGGAGATC 540	Oy 421 CTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGGAGCAGC 480	Qy 361 CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAC 420	Oy 301 CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC 360	Qy 241 TGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAA 300	OY 181 CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCGGTCCTCGGCGTC 240	OY 121 CCCGTCGAGGACTTCGACGCGATCGTCGTCGTCCCCGGGCCCCGGCAGCCCGGGAACCGGGAA 180	Oy 61 GGCGAGGCCACCGGGCAACCCCCCCGTCGTCGTCGTCGCCAACGACGCCGACTGGTCGCGGCTG 120	QY 1 ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC 60	Query Match 86.1%; Score 1773.8; DB 1; Length 14159; Best Local Similarity 92.8%; Pred. No. 1.6e-135; Matches 1913; Conservative 0; Mismatches 97; Indels 51; Gaps 3;	sc_feature	note="Region: adenylation domain A9" /note="Region: adenylation domain A10" misc feature 50435075		adenylation domain	adenylation domain
Qy 1801 ACCATGGAGATCATCGACGCCTGGAGGAAGGCCCCCGGGGGGTTACTCCGGGGGCGTC 1860	OY 1741 GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGC 1800	Db 9782 GCGCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCACC 9841	1621 AACAGGGTCTGCGCATCGGGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC	1561 GGCCGGGAGAAGGACCGGGCCGAGAACCTCATGATCGTCCACCTCGCCCAACCAA	1501 GGACCCGCCCCGGGGGGGACCACCGGGAGGAGGACGACCTCCGCGCCCGACCTGGCC	41 42	QY 1381 ATCAGCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTCAGCGCC 1440	Db 9422 AACATGGTCACCGCGCCGACCGACCGAGCGACCGGCTCTACTCGGGGTGCGCGCC 9481	1261 GGCATIGACGAGTGCCTCAAGGAGATCCGCCACGGGGAGTGTACGAGATCTGCCTGACC 9381	1201 GCGGCGGCTTCGGCCCCTGGCCCGCGCCACGACAAGGACGCCTACCTCAAG	1141 GCCTTGCCGTCCGGCCGGCCGAGCCGACCCCGCCATGGTCTTCGGGATCCCCGAG	1081 CGCCGGGGCCACGACGACGGCGCCCGCGCTTGCGGGAACGCCGACACCCTCACC	Db 9149 GCCGACCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTACCTGCTGGCCCTCGAC 1080	961 GCGGAGACCACCGGCGACCCGCGCACCGCGCACCCCGACGCCGC	QY 901 CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG 960	Db 8969 GCGCCGACCCCTTCTCAGCTAGCAGGAGGAGCAGCTGGACGCGGCGGGTCCCCGTCGCC 9028	781 TACCGCGTCGCCGACGGCGTCGTCCGGCGCGCCCCGGACGGA	8849 GGGGCTCGCCGTTCTCCTTCCTCGGCGACGACCGCCGCCTCGCCGAGTACCTCACC

OY 356 GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCCTGGCCGCCACCGACCTCCCCG 415	Qy 296 CGGAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCCGGCGAGGACGTCTTCCGGG 355	QY 236 GCGTCTGCCTCGGCCACCAGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCC 295	QY 176 GGGAACGGGACTTCGGAATCAGCCGGCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCG 235	OY 122 CCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCACCCCGACC 175	Qy 62 GCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGCCAACGACGCCGACTGGTCGGGCTGC 121 Db 131 CCGAGGTGAACGGCGCCGCTCCGCTCGTCGTCGCAACGACGACGACCACCCGCACCTGGCAGG 190	QY 2 TGCGCACGCTTCTGATCGACAACTACGACTTCACCCACAACCTGTTCCAGTACATCG 61	y Match Local Similarity 64.4%; Score 820; DB 6; Length 2220; Local Similarity 64.4%; Pred. No. 4.4e-58; hes 1356; Conservative 0; Mismatches 655; Indels 93; Gaps	source 1. 2220 /organism="unknown" /mol_type="unassigned DNA" ORIGIN	same by mutasynthesis R-2002;	Unclassified. REFERENCE 1 (bases 1 to 2220) AUTHORS Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, F., Crouzet, J., Barriere, JC., Debussche, L., Famechon, A., Paris, JM. and	VERSION AR198361.1 GI:20248210 KEYWORDS . SOURCE Unknown. ORGANISM Unknown.	NOI 1	Db 10142 GCAGTGGCGGGCCCGATGA 10162 RESULT 6	2041	Db 10082 GAGGAGTTCAGGCAGACCGTGGTCAAGGCCCGCCCATGGTCACCGCCCTCGACGGCAGC 10	10022 GCCGAGCCGGGCCGAGCTTCGGCGTCGGGGGGGGGTTCGTTTTTTTT	1921 GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGGGGATCGTGTCCCTCTCCGACCAGGAG	QY 1861 GGATGGTTCGCCCTCAGCGGCGCCGACCTCAGCATCGTCATCGGCACCATCGTGCTG 19 Db 9962 GGATGGTTCGCCCTCAGCGGCGCCGACCTCAGCAACCATCGTCATCGCAACCAAC	Db 9902 CCCATGGAGATCATCGACCGCCTGGAGGGAAGGCCCCCGGGGGCGTCTTACCCCGGGGCGCTC 99
Qy 1367 CCGCCTCGCGCCATCKACCCCCTCCCTACGGCGCCTCCCGAGTTCCCCGAACTGT 1426	Oy 1307 Db 1433	Oy 1247 Db 1373	Db 1313 TCACCCTGCTGCCCGACGACCAACTGCCCGGCCTGGACGTCCACTACGGCCACAAGCCTGC 1372	Db 1253 CCGAACGCTGACCGACGCCGGACCCACCGCCCCGCCCGCC	Qy 1067 TGCTGGCCCTCGGCGGGGCCACGACGGCGCCCGGCGCCTGGCTGG	Qy 1007 CCGCGTTCCTCTTCGCCGACCGCCATCGCCCTCGACCAGGAAGGCTGCTGCTACC 1066	947 GCTACGAGCTGAAGGCGGAGACCACCGGCGÁCCCCCGCGCACCGCCCCACCCCGACCCGACGCGCGACCGCGCGACCGCGGCG	Qy 887 GGGTCCCCGTCGCCCCGAACTGCCCTTCGAGGTTCAACCTCGGCTACGTCGGCTACCTCG 946	Qy 827 CCACGACCCGGACGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGAC 886	Oy 767 CCGAGTACCTCACCTACCGCGTCGCCGACGGCTCCGCGGCTCCGCGGCTCCGACGGCA 826	Oy 707 GCTCCGTCCTCGAAGGCGCCTCGCGCTTCCTCCTCGGCGACCGCCGCCCGC	Qy 647 Db 791	Qy 605	Db 671 CCGAACGCATACCCGCACCCGCCCCCGCCCCCGCCCCCGCACCGGCACCGCCCCGCACCGCCCCCGCACCGCCCCGCACCGCCACCGCCCCGCACCGCCCCGCACCGCCCCGCACCGCCCCGCACCGCCACCGCCCCGCACCGCCCCGCACCGCCACCGCCCCGCACCGCCACCGCCACCGCACCGCACCGCCACCGCACCGCCACCGCACCCGCCACCGCACCAC	10141 Qy 561	Oy 536 AGATCATGGGCAACTTCCGGGACCT	1980 Db 551 ACCTGCCCGGCTTCGGCGTGCAGCTCCGAATCGATCAGCAGCGAACACGGCCACC 610	Db 491 CCGACCTGCGCGCCACCACCGCCGACGGCCGACGACGGCCGACGACG	9961 Oy 416 ACGAGCTCGAACCCTCGCCTGGAGCGACGÁCGGGGTCGTCATGGGCCTGCGCACCGCG 475

```
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 7
SPU60417
                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭉
                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                             TITLE
JOURNAL
                                                                                                                               JOURNAL MEDLINE
                                                                              AUTHORS
                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1613
Direct Submission

Submitted (11-JUN-1996) Recherche F
Submitted (11-JUN-1996) Recherche F
Submitted (11-JUN-1996) Recherche F
                                                                                                                                                                                                                                                                                                                                                                                                     4740 bp
Streptomyces pristinaespiralis 4
precursor biosynthesis (paph, pa
                                                         2 (bases 1 to 4740)
Blanc, V., Gil, P., Bamas-Jacques, N.,
Bisch, D., Blanche, F., Debussche, L.,
                                                                                                                                                                                                                                                                              Streptomyces pristinaespiralis
Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteria; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                             Identification and analysis of genes from Streptomyces pristinaespiralis encoding enzymes involved in the biosynthesis of the 4-dimethylamino-L-phenylalanine precursor of pristinamycin I Mol. Microbiol. 23 (2), 191-202 (1997)
                                                                                                                                                                                                                             Blanc, V., Gil, P., Bamas-Jacques, N., Lo
Schleuniger, J., Bisch, D., Blanche, F.,
                                                                                                               9044253
                                                                                                                                                                                                                                                                                                                                                                      U60417.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCCAAGAAGCGCACCATGGAGAATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGGCGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGCCTCCCTCGCCGGGCGAGAAGGAACCGCAGAAACCTGATGATCGTCGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTCCGGGGCGCTCGGATGGTTCGCCCTCAGCGGCCGCCGACCTCAGCATCGTCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGTGGAGACCTACGCCACCGTCCACCAGCTCGTCAGCACGGTCCGCGGCCGCCTGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGCCGACCTGGCCGGCCGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGG 1606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGTCCGACCCCGACGACGAGGTCCGCGAAATGCTCCTCAAGGCGCAGACCACCCTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCACCATCGTCGCCACCGAGGAGGCCGCCACCATCGGCGTGGGCGGCGCCGTCGTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTCGGGCGCGCTGGGCTACTTCGCCCTCAGCGGCGGCGGCCGACCTCAGCATCGTCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGACGTCTCCCGCCCCCCGCGGTACGGGCCGCCTTCCCCGGCGGCGGTCGATGACCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGC 1726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCGCAACGACCTCGGCCAGGTCTGCGACATCGGCTCCGTCCACGTACCGGGCCTGTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCACGTGCCCCGGCTCTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 4740)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2156
                                                                                                                                                                                                                                                                                                                                                                    GI:1575335
                                                                                                                                                                                                                                                                                                                                                                                                                   (papA, papC, papB,
                                                                                                                                                                                                                                                                                                                                                                                                                                 p DNA linear BCT 07-MAR-4-dimethylamine-L-phenylalanine
          Pharmaceutique, Rhone-Poulenc . 14, Vitry sur Seine cedex 94403,
                                                                                                                                                                                                                            Lorenzon,S., Zaç
                                                         Lorenzon, S., Crouzet, J. a
                                                                                                                                                                                                                                                                                                                                                                                                                papM)
                                                           ., Schleuniger,J., and Thibaut,D.
                                                                                                                                                                                                                                                                                                                                                                                                                   genes,
                                                                                                                                                                                                                                             Zagorec,M.,
                                                                                                                                                                                                                               Crouzet, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    BCT 07-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                 complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                   SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transT_table=11
/product="PapC"
/protein_id="AaC44867.1"
/protein_id="AaC44867.1"
/db_xref="Gd:1575337"
/db_xref="Gd:1575337"
/db_xref="Gd:1575337"
/db_xref="Gd:1575337"
/db_xref="Gd:1575337"
/db_xref="Gd:1575337"
/db_xref="MRGGSVFGRCVVVGGAGAVGRMFSHWLVRSGVAVTWLDVAGAGAADVVVLAVPEPVAMEAVEVLVAGWADVLAGVLADTL
SUKSRIAGRIREAPGLQAVALAPANVLAFGLGGEVAAVVVTDGAGAFAVELVELVAGWGARVUENPARREDELTPAAQQAATHAAVLAFGLGGELSVDVGALRDSAPPPHLAMALL
GARVUENPARREDELTPAAQQAATHAAVLAFGLGGELSVDVGALRDSAPPPHLAMALL
LARIAGGTPEVYFDIQAANPGAPAARQALGRGLVRLGQAVERGDEETFAALFAELRGV
LGEHGAELERLCARMFTALH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 68. .2227
                      /protein_id="AAC44869.1"
/db_xref="GI:1575339"
/db_xref="GI:1575339"
/tz=ndatain="MTAAPTLAQALDEATGQLTGAGITADAARADTRLLAAHACQVA
/tz=ndatain="MTAAPTLAQALDEATGQLTGAGITADAARADTRLLAAHACQVA
PGDLDTCLAGPVPRRWHYVRRRLTREPAERIVGHAYFMGHRFDLAFGVFVFKPETEE
ITRDAIARLEALVRRGTTAPLVVDLCAGPGTMAVTLARHVPAARVLGIELSQAAARAA
RRNARGTGARIVQGDARDAFPELSGTVDLVVTNPPYIPIGLRTSAPEVLEHDPPLALM
                                                                                                                                                                         /gene="papM"
3799. .4677
/gene="papM"
/function="N-methylase"
                                                                                                                                                                                                                                                           /trānslation="mtppaipaappatgpaaatdpldalrarldaadaalldayrtrl
DICLRIGEYKRLHQVPMMQPHRIAQVHANAARYAADHGIDPAFLRTLYDTIITETCRL
EDEWIASGGAPVPTPVHASASARGAVS"
                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="pap8"
3413. .3802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (2486. .3376)
/gene="papC"
                                                                                                                                                                                                                                             3799. .4677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3413. .3802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (2486.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:38300"
68._.2227
          4GEEGLGMIRAMERTAARLLAPGGVLLLEHGSYQLASVPALFRATGRWSHASSRPTCN
                                                                                                                        /codon_start=1
/transl_table=11
/product="PapM"
                                                                                                                                                                                                                                                                                                              /product="PapB"
/protein_id="AAC44868.1"
/db_xref="GI:1575338"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                /gene="papB"
/function="mutase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="papC"
/function="dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'gene="papA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              organism="Streptomyces/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              function="p-aminobenzoate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .4740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .3376)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pristinaespiralis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              synthase"
```

8	B &	B &	B &	Оy	B &	g Q	<u> </u>	90 90 90 90 90 90 90 90 90 90 90 90 90 9	B &	Db Oy	B 8	8 8	B 8	B &	문 <i>왕</i>	용 성	Query Best 1 Matche	ORIGIN
887 GGGTCCCCGTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG 946	827 CCACGACCCGGACGCGGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGAC 886	767 CCGAGTACCTCACCTACCGCGTCGCCGACGGCGTCTCCGTCCG	707 GCTCCGTCCTCGAAGGCGCCTCGCGCTTCTCCTTCCTCGGCGACGACCGCCGGCCCGCTCG 766	647 CCGAAGAGGTACGCCGCGGCGGCCGGCCGGGGGGGCACCACGTTCTGGCTGG	605CGTACGAACTCCACGTGCGCCGCGTCGACGTGCCGCGACG 646	561	536 AGATCATGGCCAACTTCCGCGACCT560	476 AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG 535	416 ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCG 475	356 GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCG 415	296 CGGAÁCCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCCGGCGAGGACGTCTTCCGGG 355	236 GCGTCTGCCTCGGCCACCAGGGGATCGCCCAGCTCTTCGGCGGAACCGTCGGCCCCCCCC	176 GGGAACGGGACTTCGGAATCAGCCGCCGGGGGATCACCGACAGCGGCCTGCCCGTCCTCG 235	122 CCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACC 175	62 GCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGTCCCAACGACGCCGACTGGTCGCGGCTGC 121	2 TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG 61	Query Match 39.8%; Score 820; DB 1; Length 4740; Best Local Similarity 64.4%; Pred. No. 3.2e-58; Matches 1356; Conservative 0; Mismatches 655; Indels 93; Gaps 5;	DGCLTAVRNHTCAPPA"
	-													•				
gb Qy	₽ \$	S & &	S & &	2 D Q	B &) B &	dd VQ	, B &	8 B &	p &	\$ B \$	5 B &	S B &	5 B 8	. B &	S & &	S & &	B
1967 TETECGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCG 2026	40	*/ ACICCESSECTICES INSTITUTE CASCESCECTICES CONTROLLED TO ACICCESSECTION OF THE ACICCESS	87 CGCCCAAGANGGCACCATIGGAGATCATICGACCGCCTIGGAGAAGGCCCCCGGGGGTCTT 	ccaecaccaccaccaccaccaccaccaccaccaccaccac	AGGTTGGAGACCTACGCCACCGTGCACCAGCTTGGTGACCATCGGGGACGGCTGGGGCTGGGGCAGGTTGGGGGACGGTCGGGGCCGCCTGGCGG	07 TCCGCAACGACCTCAACAGCCTCTGCGCCGACTCCGTCCACGTGCCCCGGCTCTTCG	47 GCGCCACCTGGCCGGCGGAGAAGACCTGGCCGAGAACCTGATGATCGTCGACCTGG	8) CHANGECHAITEANGHGHAEL COGECECCOGGGCCGAGHAGHAGHAGHAGHAGHAGHAGHAGHAGHAGHAGHAGH	27 CGSTGCTGAGGGCCTCGCCCGAGGGTTCCTCAGGATCGGCGCGACGGCGGCGGCGAGG 	6 / CGCGCTGCGCGCTATCAGCCCCGGACTGTCCGGAGCCCTACCTGCAGTTCCCCGAACTGT 00 GCGCCTGCGCACCGTCAGCCCCCCCTACCTGCAGTTCCCCGGGGCCA	7 AGAIC SECTION CHARAIGH CHECKERCHARCHACHACHACHACHACHACHACHACHACHACHACHACHAC	4/ ACECTACCICAGGERICGACGAGIGETRAGGERIAGGER	7 LOSSET CELEMENT CONTROL OF THE CON	2) CUARANCETICACEGETIGACEGTECAGECETEGETEGACEGETEGACEGETEGATEGATEGATEGATEGATEGATEGATEGATEGAT	7 INCLUMENTAL INCLUMENTAL AND	7 CONTROL OF THE CONT	47 GCTACGAGCTGAAGGCGAGACCACCGGCGACCCCGGCGCCGCGCCCCCGCACCCCGACG	35 GCGCCCTGCCCACCGGCCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG

```
COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STMPABA
Streptomyces :
M93058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  M93058.1 GI:153396
pab gene.
Streptomyces griseus
Streptomyces griseus
Bacteria; Actinobacteridae; Actinomycetales;
Bacteria; Actinobacteriae; Actinobacteriae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Criado, L.M., Martin, J.F. and Gil, J.A.

The pab gene of Streptomyces griseus, encoding p-aminobenzoic acid synthase, is located between genes possibly involved in candicidin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Original
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptomycineae; Streptomycetaceae; Streptomyces
1 (bases 1 to 4607)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126 (1), 135-139 (1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2030
/protein_id="Apro-
/db_xref_
                                                                                                                                                                                                                                                                         /translation="mrtilvdnydsftynlfhylsrangrepevirnddpawrpglld robnydsgtynlfhylsrangrepevirnddpawrpglld rednydlsgegeden rednydlsgegeden rednydlsgegeden rednydlsgegeden rednydlsgegeden rednydlsgegeden rednydlygegeden rednydlygeged rednydlygegeged rednydlygeged rednydlygeged rednydlygeged rednydlygeged rednydlygeged rednydlygeged rednydlygeged rednydlygeged rednydlygegeged rednydlygeged rednydlygeged rednydlygeged rednydlygeged redn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transI_table=11
/protein_id="AAA72110.1"
/protein_id="AAA72110.1"
/db_xxef="GI:388262"
/translation="MRVTVDSEQCVGAGQCVLNAPEVFDQDDDGVVVLLRADPTSGTT
/translation="MRVTVDSEQCVGAGQCVLNAPEVFDQDDGVVVLLRADPTSGTT
/translation="MRVTVDSEQCADRHRCPVRPGPRTRGPADPPANTDRRQNHRR
DSPYTRADDTAARMLRRYHPAEADAVRLUVCFPHAGGSASFYHPVSARFAPGAEVVSLQ
YPGRQDRKEBCVVPDLGTLADLITGDLFLDERFTVFFBGHSMGAALAFETAWRLEQKG
AGPRTVIASGRRGPSTTRAERVHTRDDGIVAEMKRLMGTAAGVLGDESILRMALPAL
REDYRALIETTYCCPDBRLACGLTVLTCEDDPLTTVEEAERWRDHTTGPFRLRVFTGGH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source text:
                                                                                                                                                      APLLRLLDTAFPGRERPGKDLDGEPDDGTDAGAPKDLVLPG"
                                                                                                                                                                             LTMMAEADTDLTPMAAYRALRRVSPAPFAAFILDFGFMAVLSSSPERFLRIDRHGRMES
KPIKGTRPRGATPQEDAALVRALATCEKDRAEKUMIVDLVKHDLGKCAEYGSVVADPV
FQVETYATVHQLVSTVTARLLEDSSEVVAAVRAAFPGGSMTGAPKIRTMOLIDRLEGGF
RGVYSGAIGYFSLTGAVDLSIVIRTVVLSGGRLRYGVGGAVIALSDPADEFEETAVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transT table=11
/product="p-aminobenzoic
/protein_id="AAA72111.1"
/db_xref="GI:388263"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                        /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1370. .3541
/gene="pabAB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="pabAB"
1370. .3541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FFLTQHLDAVNTEIAQALHPDRAAPAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Streptomyces griseus"
/mol_type="unassigned DNA"
/db_xref="taxon:1911"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="thioesterase-II-S-acyl fatty acid synthase homolog"
                                                                                                   note="p-coumarate:CoA ligase homolog"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tissue
       tein_id="AAA72112.1"
_xref="GI:388264"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          griseus pab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lib="IMRU3570"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ďď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pp DNA fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              acid synthase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        griseus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (library:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IMRU3570)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA
                                                밁
                                                                                         δ
                                                                                                                                                    밁
                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 1341;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
                                                                                                                                                                                                                                                     2090
                                                                                                                                                                                                                                                                                                                                                   2030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1370
                                                   2210
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1430
                                                                                                                                                                                                                                                                                                     655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
  CGGACGCGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
```

/translation="MVPVHAHDYVTDPPSTTGRTLDGLTLPRVFADAVHRGGDAVALV
DGEYALTWSAWRTAVDALARGLQSGVVSGDVVALHLPNSWEYLTLTHLLAAASVGAVTM
PVHQGNAPSDVVALLERVRPAAVVLTARTOSGGGPLTGPALREVLPELRAVLVTGDAV
PVHQGNAPSDVXALLERVRPAAVVLTARTOSGGGFLTGPALREVLPELRAVLTVTGNA
GBGTETVTEMLERWSGEDPLPVEVRPDSPFLLLPSSGTTSARPKICLHSHEGLLTNSR
AATEDTADAYAGTLITACPLTHCFGLQSAYSALFRAGRQVLLSGWDVGRFLELARRER
AATEDTADAYAGTLITACPLTHCFGLQSAYSALFRAGRQVLLSGWDVGRFLELARRER PSVVVAVPASCTTWSPGCARTRTAPASARPDP"

1550 CCGGCCGACTTCGGCCTGTGCGCCCGGATCGCCGAGGAGGGCCCGGCTGCCGGTGCTCGGC GCCAAGGCCGACGTGCACGCCGGAACCGTCACGGTGAGAG---CCGACGGCGCCAGCAGC CTCGAAGGCGCCTCGCGCTTCTCCTTCCTCGGCGACCGCCGGGCCCCGCTCGCCGAGTAC GAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCCGGCGAGGACGTCTTCCGGGGCC CTCACCTACCGCGTCGCCGACGGCGTCGTCTCCGTCCGCGCGCTCCGACGGCACCACGACC GGGGGCGAGCTGGGCCAGCTCTCCATGATGGGCCGACGCCTCAGGTCCCCTCGCCCGGACC GCGGGACACGCTCCCGCCCCCCGCGCCCCGCGGGAGACGAAGGCCACCACCGGC ATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGCACGGC------AAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAG GCCTTCGACTCGCTGTTCCGCACCGGCGACCACCCCTTCTGGCTCGACAGCAGCCGTCCC ACCCCACGGCGGCTCCGGGTCATCGCCAAAGTCGCTGCCCACGCGCTGGGACGCCGAGGTC GCGTCGACGTGCTGCC-----------GCCACGGGGCCGACTCCCCGTACGAACTCCACGTGCGCC CTGCTGGCCAACTTCCGCGACCTCACCGAGCGCCACGGCCGAACGCGCCACGGCCGG GAGCTGGAGGCCACCGCCTGGTCGGAGGACGGGGTCCTGATGGCGCCTGCGCCACCGCACG GAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCGAG CTGCCGCAGCCGCTGGAGGTGGTGCCGCTACCACTCCCTCGCGGTGACGGAACTGCCGCCG CTCCCCTCGCCGTTCACCGCCGTGCGCTACCACCTCCCTGGCCGCCACCGACCTCCCCGAC GAGCCCCGTCACGGCGCACCTCGGCGGTACGGCACGACGGCACCGGGCTCTTCGAGGGG GTCTGCCTGGGCCACGAGGGCATGGCCCTCGCCCACGGCGCCCGGGTGGGCCCGGGCCCCC GAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGC GGTCTGCTCGACGCGTTCGACAACGTGGTGCTCTCCCCGGGGGCCGGGCACCCGCACCGC TCCCGGGCCAACGGCCGGGAACCCGAGGTCATCCGCAACGACGACCCGGCCTGGCGGCCG GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGCCCAACGACG----CCGACTGGTCGCGG ATGCGCACCCTTCTCGTCGACAACTACGACTCGTTCACCTACAACCTCTTCCACTACCTC ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC GTGGGGAGTGCAGTTCCACCCCGAGTCGATCGGCACCCAGGACGGCCACCGG 37.5%; 0, Score 773.4; DB 1 Pred. No. 1.9e-54; Mismatches 686; <u>,</u> Indels Length -GGACGCCGAAGAG 4607; 96; Gaps 1969 477 2266 1789 834 2209 2149 2089 2029 625 537 417 1729 774 714 654 586 1909 1849 1669 1609 1549 1489 1429 357 297 237 177 117 60

3439 2034 3379

canC

gene,

canF

gene,

BCT 20-MAR-2002

```
δ
                                                            밁
                                                                                      ঠ
                                                                                                                            밁
                                                                                                                                                    8
                                                                                                                                                                                             В
                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뭐
                                                                                                                                                                                               3140
                                                                                                                                                                                                                                                                 3080
                                                                                                                                                                                                                                                                                                1675
                                                                                                                                                                                                                                                                                                                                                                    1615
                                                                                                                                                                                                                                                                                                                                                                                                       2960
                                                                                                                                                                                                                                                                                                                                                                                                                                         1555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1315
                          1915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       895
                                                                                                                                                                                                                                                                                      ACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACC
     GTGCTGGCCGACGCCAGGCGAGTTCGGCGTCGGCGGGCGATCGTGTCCCTCTCCCGAC
                                                                                                                                               AAGCGCACCATGGAGATCATCGACCGCTGGAGGAGGAGGCCCCCGGGGGCGTCTACTCCGGG
                                                                                                                                                                                                                  AGCACCGCCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCTCCATGACCGGCGCCCAAG
                                                                                                                                                                                                                                                                                                                                                             GACCTCAACAGCGTCTGCGCGATCGGCTCCCGTCCCACGTGCCCCGGCTCTTCGAGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                      CTGGCCACCTGCGAGAAGGACCGCGCGCGAGAACCTGATGATCGTCGACCTGGTCCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGCCGGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCAAGGGCACGCGACGCGCGCGCGCCACCCCGCAGGACGCCCGCGCTCGTACGTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCC 1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGACCAACATGGCCGAGGCGGACACCGACCTCACCCCGTGGGCGGCCTACCGCGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCTTCGCCGACCGCCCATCGACCTCGACCAGGAAGGCTGCTGCTACCTGCTGGCC 1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGGTGCCCGAACTTCCCCTTCGCGTTCGCGCTCGGCTGGGTCGGCTGCCTGGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCGCCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACGGTCGAGAGCGCCTTCCTGACCTGGCTGGAGAACGACCTGGCGGGGCTGCG---
                                                                                          ececrceenreerrceccrcaecececececeaccraecarcercarcecarcearc
                                                                                                                            AGCCCGGTGGCGGTCCGGGCGGCCTTCCCCCGGCGGTCGATGACCCGGGGCCCCGAAG
                                                                                                                                                                                                                                                                 ACGTACGCGACCGTGCACCAGCTGGTCAGTACCGTCACGGCGCGGCTGCGCGAGGACAGC
                                                                                                                                                                                                                                                                                                                                  GACCTGGGGGGGGTGCGCGAGGTCGGCTCGGTCGTCGCCGACCCGGTGTTCCAGGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCAGCTCTCCGGAGCGGTTCCTGCGCATCGACCGGCACGGGCGGATGGAGTCCAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGGGTGAGCCCCCCCCCTTCGCCGCGTTCCTGGACTTCGGTCCCATGGCCGTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cececcarcaeccoreceracecerecerecressericeceeaacrerecerecre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cTGACCAACATGGTCACCGCGCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGAAGCTGATCGACGTCTGCCAGCAGGAGATAGCCGCCGGGGAGACCTACGAGGTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGAGGCGCCCGTGTGCACGACGGGTCCGGTGGAGCTGCGCCACGACCGGGACGGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGACGCCGTCGCCGGGCGGGAGCC-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCACCGGCCTGGCCGCCCCCGGCCGAGCCGACCCCCGCCATGGTCTTCGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGGTGGAGGACGACGCCGAGGCCGAGGCGCGCCCTGGCTCGCGGCGGCCTCCGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCGACCGCCGGGGCCACGACGACGGCGCCCGCGCCTGGCTGCGGGAGACGGCCGAGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGAAGGCCGAGTGCGACGGCGACGCGCACCGCTCGCCCGATCCCGACGCCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGAGCCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                     1614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1014
                                                                                                                                                            1854
                                                                                                                                                                                               3199
                                                                                                                                                                                                                               1794
                                                                                                                                                                                                                                                               3139
                                                                                                                                                                                                                                                                                                                                  3079
                                                                                                                                                                                                                                                                                                                                                                  1674
                                                                                                                                                                                                                                                                                                                                                                                                    3019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2443
                          1974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 9
SGR300302
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                            gene
                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        39314 bp DN Streptomyces griseus partial ORF1, ca canT gene, canRA gene and canRB gene. AJ300302.1 GI:12231153
ABC-transporter. amin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (14:NOV-2000) Gil J.A., Microbiologia,
Leon, Campus de Vegazana s/n, 24071, SPAIN
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Microbiology
21642576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomyces griseus
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABC-transporter; aminotransferase; can RB gene; canA gene; gene; canF gene; canRA gene; canT gene; Cho-like protein; cytochrome P-450; ferredoxine; PABA synthase; thioesterase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Campelo, A.B. and Gil, J
The candicidin gene clu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Campelo, A.B.
Thesis (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomyces griseus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Leon,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11782498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGGCCGACTTCGAGGAGACGGCGGTCAAGGCCGCCCGCTGCTGCTCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCGCCTTCCCGGGCCGTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCAGCGCCGTGGCGGGCGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGGAGGAGGAGTTCACCGAGACCGTGGTAAAAGGCCCGCGCCATGGTCACCGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGCTCAGCGGCAGGCTGCGCTACGGCGTCGCCGCCGTCATCGCGCTCTCCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 39314)
                                                                                                                                      /transl_table=11
/prodein_id="Chc22112.1"
/protein_id="Chc22112.1"
/protein_id="Chc22112.1"
/db_xref="G1:1231154"
/db_xref="G1:1231154"
/db_xref="G1:1231154"
/db_xref="G1:1231154"
/db_xref="UniProt/TrEMBL:Q9EWC6"
/translation="MLLERTTEIALUDALGAATEGRSSLVLLTGPLGIGRSALLQRL
SCLADDRAPPGADQAIAATEAVHGLLSILANVSADSRLLILVDDLQWSDVPSLRWLTY
LAKRLHGLRAVVVCALRDGDPRSHHTLVREIRBAATGYLRPASLSLTAPHELVREHFG
EAGDDEFVQACHEASVGNPLFLLSILVGTGFLGRRPLAEHAETARRLRPSQLRERLAS
ILRTQPAPVRDLAAALAILGEQSDAPTLARLAGLDSIGYAGALRALGALGALAAPDEP
RFIHRSVRDAAESTLTMVQRERMHDEAAALLYAAGSPAEQVAAQLMAVVTRRQPWAVD
VLRAAADTALRRGADTAGAYLCRALLDSPAAGVGRGRLLVELGTAERGFDPLACCRH
IAQAMTLLPBPRDRAVAALRISPTALGHSTLTAVLLRQAAEDLGPADGLTGTDBDLA
LRLEARLRHCGHEDPHELAASSHRLKELGGPEPPVDTGGERELTIALLGAATLGCHLPA
SEVVRLAGRYLDREPATSARIHSTLPLAI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (<1. .1785)
/Codon_start=1
/transl_table=11
/product="aminotransferase"
/protein_id="CAC22113.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                     note="ORF1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           €
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Streptomyces
/mol_type="genomic DNA"
/strain="IMRU 3570"
                                                                          gene="canA"
                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _xref="taxon:1911"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Reading,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Department
                                                                                                                            .10583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cluster from
ng, Engl.) 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Microbiologia, Universidad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Streptomyces griseus
B (Pt 1), 51-59 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             canA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene,
```

Universidad

de

IMRU

de

SgS

```
/gene="pabAB"
/codon_start=1
/trans1_table=11
/trans1_table=11
/product="PABA synthase"
/protein_id="CAC22117.1"
/protein_id="CAC22117.1"
/db_xref="vg1.12231159"
/db_xref="vg0A:Q9EWC1"
/db_xref="vg0A:Q9EWC1"
/db_xref="vn1Prot/TrEMBL:Q9EWC1"
/trans1ation="MRTLLVDNYDSFTYNLFHYLSRANGREPEVIRNDDPAWRPGLLD
AFDNYVLSPGPGTPHRPADFGLCARIAEEGRLPVLGVCLGHQGMALAHGARVGRAPEP
RHGRTSAVHLDGTGLFEGLPQPLEVVRYHSLAVTELPPELEATAWSEDGYLMALHERT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transI_table=11
/transI_table=11
/product="cytochrome P-450"
/product="cytochrome P-450"
/product="cytochrome P-450"
/product="cytochrome P-450"
/product="cytochrome P-450"
/db_xref="col:12231156"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="thioesterase"
/product="thioesterase"
/protein id="CAC22116.1"
/db_xref="G1:12231158"
/db_xref="G1:12231158"
/db_xref="G0A:Q9EWC2"
/db_xref="UniProt/TrEMBL:Q9EWC2"
/translation="MTTADDTAARWLERYHDAEADAVRLVCFPHAGGSASFYHBVSAR
FAFGAEVVSLQYPGRODRKKEPCVPDLGTLADLTEQLLFLDERFTVFFGHSMGAALA
FETAWRLEQKGAGPRTVIASGRRGPSTTRAERVHTRDDDGIVAEMKRLNGTAAGVLGD
EBILMWALPALRGDYBAIETTCPPDRRKLACCLTVLTGEDDPLTTVEBAERWRDHTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MRVTVDSEQCVGAGQCVLNAPEVFDQDDDGVVVLLRAEPDERDH
EAVRTAGDLCPSASVVLQED"
12223...12993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PFRLRVFTGGHFFLTQHLDAVNTEIAQALHPDRAAPAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /producT="ferredoxine"
/protein id="CAC22115.1"
/db_xref="G01:12231157"
/db_xref="G0A:Q9EWC3"
/db_xref="UniProt/TrEMBL:Q9EWC3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11906
LPLWGVQFHPESIGTQDGHRLLANFRDLTERHGRTRHGGRAGHGTLPPPAPARETKAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="canT"
12223. .1299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="canf"
11906. .12100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="canC"
10678. .1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10678.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AADQEYITGAVRDFYRAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AERREELRAHLDERGIETRLFFKPMSRQPGYLDPVWPTLNAHRFSEDGLYLPTHTGLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="canC"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="canT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="canF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .11859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .11859
                                                                                   Ş
                                                                                                                                                                  뮍
                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 1337;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                  13490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13190
                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          щ
```

gene

CDS

gene

CDS

gene

SdC

```
/codon_start=1
/trans1_table=11
/product="ABC-transporter"
/protein_id="CACC2119.1"
/db_xref="GI:12231161"
                                                                                                                                                                                                                                                                                                         21970. .22776
/gene="canRB"
21970. .22776
/gene="canRB"
                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="canRA"
/codon_start=1
/transl_table=11
/db_xref="GOA:Q9EWB9"
/db_xref="GOA:Q9EWB9"
/db_xref="UniProc/Trembl:Q9EWB9"
/tramslation="WerbaavPafeGSSLffQIRVLTGRSLRAMVTDPGIVLFGLIQP
VVILFVLTQVFSKMGMPPHFPDGV6YLDYVLPAVLVDNAAQSAMQSGVGLVEDQKNGI
VARLRSI,PVHFGALLAARSLVGIVRSAVQVAVIMALAMTVLCYSPNGGAAELALSAGL
TLF15FSLGWAFIAAGAMLTRRAEPLQNIALIVIFPLMFASSAVVPVADLPSWLGAVAS
VNPLTYAIDATRALALDVPGLDHAIPAVVICAVIAVVGMIAAVRGFRRPL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGTPRRLRVIAKSLPTRWDAEVAFDSLFRTGDHPFWLDSSRPGGELGQLSMMGDASGP
LARTAKADVHAGTVTVRADGASSTVESAFLTWLENDLAGLTREVPELFPRAFALGWVGC
LGYELKABCDGDAAHRSPDDDAVLYRADRALVLDHRTTGTYLLALVEDDAEBARAWL
AAASATLDAVAGREPBPCPEAPVCTTGPVELRHDRDGYLKLIDVCQQEIAAGETYEVC
LTMMABEADTDLTPWAAYRALRRVSPAPFAAFILDFGPMAVLSSGERFLAIDRHGRMES
KPIKGTRPGATPQEDAALVRALATCEKDRAEHLMIVDLVRHDLGRCAEVGSVVADPV
FQVETTATVHQLVSTVTARLREDSSPVAAVRAAFPGGSMTGAPKIRTMQLIDRLEGGP
RGVYSGATGYPSLTGAVDLSITTRVVILSGGRLRYGVGGAVIALSDPADEFEETAVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="canRA"
20829. .21836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20829.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APLLRLLDTAFPGREAPGKDLDGEPDDGTDAGAPKDLVLPG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .21836
```

Query Match Best Local Similarity 13250 TCCCGGGCCAACGGCCGGGAACCCGAGGTCATCCGCAACGACGACCCGGCCTGGCGGCCG CCGGCCGACTTCGGCCTGTGCGCCCGGATCGCCGAGGAGGGCCGGCTGCCGGTGCTCGGC CTGCCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCGG 177 GAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGC 357 GAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGC GECENGECÓN CO GENERAL CONTROL DE LA CONTROL GTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCG GGTCTGCTCGACGCGTTCGACAACGTGGTGCTCTCCCCGGGGGCCGGGCACCCCGCACCGC 13369 ATGCGCACCCTTCTCGTCGACAACTACGACTCGTTCACCTACAACCTCTTCCACTACCTC ATGCGCACGCTTCTGATCGACCAACTACGACTCGTTCACCCCACAACCTGTTCCAGTACATC Conservative 37.5%; 0; Score 773; DB 1; Pred. No. 8.5e-55; Mismatches Length 39314; Indels reecceecccc 96; Gaps 237 117 13249 297 13309 60 13489 13429 6

```
14264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14204
                                        14540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13610
                                                                                                                                                                                                                                                                                                                                                                                                                                                1015
     1375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGGGCGAGCTGGGCCAGCTCTCCATGATGGGCCGACGCTCAGGTCCCCTCGCCCGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGCTCGAACCCCTCGCCTGGAGCGACGGGGTCGTCATGGGCCTGCGGCACCGCGAG
                                                                                                                                                                                                                                                                                                                                                        CTCGACCGCCGGGGCCACGACGACGGCGCCCGCGCCTTGGCTGCGGGAGACGGCCGAGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                CTCTTCGCCGACCGCGCCATCGCCCTCGACCACCACGAAGGCTGCTGCTGCTACCTGCTGGCC 1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGGTGCCCGAACTTCCCCTTCGCGTTCGCGCTCGGCTGGGCTGCCTGGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACGGTCGAGAGCGCCTTCCTGACCTGGCTGGAGAACGACCTGGCGGGGGCTGCG----CACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCAAGGCCGACGTGCACGCCGGAACCGTCACGGTGAGAG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCGGGCACGGC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGCTGGAGGCCACCGCTGGTCGGAGGACGGGGTCCTGATGGCGCCTGCGCCACCGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGCCGCAGCCGCTGGAGGTGCCGGTACCACTCCCTCGCGGTGACGGAACTGCCGCCG 13609
                                                                                                                                                                                                                         CCCGAGGCGGCCGGCTTCGGCCCCCTGGCCCGCGCGCCACGACAAGGACGCCTAC 1254
                                                                                                                                                                                                                                                              CTGGACGCCGTCGCCGGGCGGGAGCC-----
                                                                                                                                                                                                                                                                                                                                      CTGGTGGAGGACGACGCCGAGGCCGAGGCGCGCCTCGCCGCCGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                           TTGAAGGCCGAGTGCGACGCGACGCGCACCGCTCGCCCGATCCCGACGCCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCGCCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGACGCGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCACCTACCGCGTCGCCGACGGCGTCGTCCTCCGTCCGCGCCTCCGACGGCACCACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cregaagececerecererererereses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCTTCGACTCGCTGTTCCGCACCGGCGACCACCCCTTCTGGCTCGACAGCAGCCGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCCCACGGCGGCTCCGGGTCATCGCAAAGTCGCTGCCCACGCGCTGGGACGCCGAGGTC 13909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGTCGACGTGCTGCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGGACACGCACGCTCCCGCCCCCCGCGCCCGGGAGACGAAGGCCACCACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGCTGGCCAACTTCCGCGACCTCACCGAGCGCCACGGCCGAACGCGCCACGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGCCGCTGTGGGGAGTGCAGTTCCACCCCGAGTCGATCGGCACCCAGGACGGCCACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCGAC
     CGCGCCATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCCGAACTGTCGGTGCTG 1434
                                                             CTGACCAACATGGTCACCGCGCCGACCGACGGCCGTGCCGCCTCTACTCCGCGCTG 1374
                                                                                                              ĊŦĠĂĀĠĊŦĠĂŦĊĠĂĊĠŦĊŦĠĊĊĄĠĊĀĠĀĠĀĠĀĠĀĊĊĠĊĠĠĠĠĀĠĀĊĊŦĀĊĠĀĠĠŦĊŦĠĊ
                                                                                                                                                 CTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGC 1314
                                                                                                                                                                                                                                                                                                  CTCACCGGCCTGGCCGTCCGCGCCCCGGCCGAGCCGACCCCCGCCATGGTCTTCGGGATC
                                        CTGACCAACATGGCCGAGGCGGACACCGACCTCACCCCGTGGGCGGCCTACCGCGCGCTG
                                                                                                                                                                                                                                                              -----CGAGCCGTGC 14419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -GGACGCCGAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13669
                                        14599
                                                                                                                                                                                       14479
                                                                                                                                                                                                                                                                                                                                      14383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              537
                                                       JOURNAL
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 10
AY310323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           유 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                           rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
   TITLE
JOURNAL
                                                                                                                                                                    TITLE
                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1495
                                                                                                                                                                                                                      Streptomyces sp. FR-008
Streptomyces sp. FR-008
Bacteria, Actinobacteria; Actinobacteriales;
Streptomycineae; Streptomycetaceae;
Streptomycineae; Streptomyces.

1 (bases 1 to 138203)
                                                                                                                                                                                                                                                                                                                                                Streptomyces sp. FR-008 heptaene cluster, complete sequence.
AX310323
Deng,Z.
Direct Submission
Submitted (30-MAY-2003)
                                                 2 (bases 1 to 138203)
Chen,S., Huang,X., Zhou,
                                                                                                            Polyene Complex
Chem. Biol. 10 (11), 1065-1076
                                                                                                                                               Organizational and Mutational Analysis of a Complete FR-008/Candicidin Gene Cluster Encoding a Structurally
                                                                                                                                                                                                 Chen, S., Huang, X., Zhou, X., Bai, L., He, J., Jeong, K.J.,
                                                                                                                                                                                       Deng, Z.
                                                                                                                                                                                                                                                                                                                                      AY310323.1 GI:34766435
                                                                                               14652074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGGCGTCTACTCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCACCGCCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCGCTCCATGACCGGCCGCCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCCGGCTCTTCGAGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGGCCGGCCGGAGAAGAACGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCAGCTCTCCGGAGCGGTTCCTGCGCATCGACCGGCACGGGCGGATGGAGTCCAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGCCTTCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCAGCGCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGCTGGCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGCGATCGTGTCCCTCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCATCGGCTACTTCTCCCTCACCGGCGCGCGTAGACCTGTCCATCGTGATCCGCACGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gcgcTcgGATGGTTCGCCCTCAGCGGCGCGCCGACCTCAGCATCGTCATCCGCACCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGTACGCGACCGTGCACCAGCTGGTCAGTACCGTCACGGCGCGGCTGCGCGAGGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACCTGGGGCGGTGCGCCGAGGTCGGCTCGGTCGTCGCCGACCCGGTGTTCCAGGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGGCCACCTGCGAGAAGGACCGCGCGAGAACCTGATGATCGTCGACCTGGTCCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGCGTCGAGTCCAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2047
     Bio-X Life
                                                           He
                                                                                                                (2003)
                                                                                                                                                                                                                                                                                                                                                                                            DNA
macrolide
     Science
                                                         Bai,L.,
                                                         Jeong,
                                                                                                                                                                                                                                                                                                                                                                                          complex synthesis
                                                         ĸ.ŭ.,
```

1914

15199 1974 15139

15259

1854

15079

15019

14959

1614

14839

1554

14779

14899 1674

Ş В δ 밁 Ś 밁 δ 밁 S 밁 5 밁 Ş 밁 S 멍 5 밁 S 밁 Ş 밁 ક В 8 밁 Ś 밁 Ş 밁 र् 밁 S

밁 S 밁

Lee,

, S . Y .

Lee,

, S.Y.

and

06-DEC-2003

δ

SdC

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Shanghai Jiaotong University, 1954 Huashan Road, Shanghai 200030,
China
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="F6GO"
/product="F6GO"
/product="F6GO"
/product="F6GO"
/product="AQ682549.1"
/db_xref="G1:34766436"
/translation="MPSTCPAPTSIGFRGCPHRRKGRTSRGRIAVPTRPCGKVRKGH
/translation="MPSTCPAPTSIGFRGCPALAASRGGABRITVFERADARLADRGVGIGV
HDARKYMRVSMRGGSVAVVGGSIAGCAAALAASRGGABRITVFERADARLADRGVGIGV
HDARKYABLENDAGYMADEMPMAPLNRRVWSVRDGDAEGRATIGTQPFPFRAVNWGSLWS
ELRRRVETATTRAGAKWEAVEGDADGVTVRLADGEPERFDLVIGADGYRSVVREAMY
PGTGAAYAGYIGWRGTSPDVSGLPSDGLDAHNITFGGGCHCMAYRIPDGSGGHRLMWVL
YTAPPRIDGLHPDLRTFTSLPPGRLNAELTEHLRALVAEHFPPFMAAKLLSTPAETTF
IQPIYDLDVPHYATDRWVLIGDAASVARPHLGAGSVKALQDATALEAAAWVAGESWKEI
LEGYHAARGPVGTAMVGLARRWGSAQVEETPDWSAMGQAEFDAWWQEQNNGSDRRSGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(4377. .7205)
/gene="fscRII"
/note="putative transcriptional regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="Fscr1"
/product="Fscr1"
/product="AA082551.1"
/db_xref="G1:34766438"
/db_xref="G1:34766438"
/translation="WubapaADPAGSPERAAVLADGFDRAGAYVACLDPSLTIQQVNQ
EFERREGGSSELCGSRFCDL/HPSVQQPLMHQPARMLDGKHHFATEVIAVDQERTA
STLPLNALAVRGGRTPDVAAILVVMNAAEEEAGDADVMAPRKKLLSEIDARILEGIAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (3150. .3818)
/gene="fscRI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="pabC"
/product="pabC"
/product="pabC"
/protein id="A966437"
/db_xref="G1:34766437"
/translation="MIELDGEPAGPEALASLALTNYGHFTTLLVENGRVRGLDLHLER
/translation="MIELDGEPAGPEALASLALTNYGHFTTLLVENGRVRGLDLHLER
/translation="MIELDGEPAGPEALASLALTNYGHFTTLLVENGRVRGLDLHLER
/translation="MIELDGEPAGPEALASLALTNYGHFTTLLVENGRARGEDLYLTICATION"
/TRANSLATION="MIELDGEPAGPEALASLALTNYGHFTTLLVENGRARGEDLYLTICATION"
/TRANSLATION="MIELDGEPAGPEALASLALTNYGHFTTLLVENGRARGEDLYLT"
/TRANSLATION="MIELDGEPAGPEALASLATION"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(2264. .3037)
/gene="pabC"
                                                                                           EAGDDEFVQACHEASVGNPLFLLSILVGTGFLGRRPLAEHAETARRLRPSQLRERLAS
                                                                                                                                   / translation="MLLERTTEIAL/DAALGAATEGRSSLVLLTGPLGIGRSALLQRL
SCLADDRDDYRVLRAHAAPMRODFAFGVVRQLFETLLGDSFEDARDRWNDAHASFARH
VLADDAAPFGADQAIAATEAVLHGLLSILANVSADSRLLILVUDLQWSDVPSLRWITS
LARRLHGLRAVVVCALRDGDRSHHTLAREIREAGTQTLRPASLSLTATHELVREHFG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (4377. .7205)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GVSTIPLASRLYLSRQGVEYHVTGLLRKLKVPNRAALVSRAYSMGVLKVGTWPPKVVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (3150. .3818)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QRRVGVRPVTGIDDREFPAAHHSVTRLAEIYQALPGSPL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGHSLKSR"
RFIHRSVRDAAESTLTMVQRERMHDEAAALLYAAGSPAEQVAAQLMAVVTRRQPWAVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DFIK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon
/transī
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (574. .1950)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement (574. .1950)
                                                                                                                                                                                                                                                                                                                                    /product="FscRII"
/protein_id="AAQ82552.1"
/db_xref="GI:34766439"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="fscRI"
/note="putative transcriptional activator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="pabC"
/note="putative 4-amino-4-deoxychorismate lyase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Streptomyces
/mol_type="genomic DNA"
/db_xref="taxon:206662"
                                                  : LRTQPAPVRDLAAAIAILGEQSDAPTLARLAGLDSIGYAGALRALGALGALAAPDEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transI_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="fscRII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="fscO"
/note="putative FAD-dependent monooxygenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'gene≃"fsc0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (2264. .3037)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sp. FR-008"
```

gene

CDS

gene

GENGRGEBAGRAANHGTRLAERWGTRRALGYVALLARGAAARGTARTGALREAVALLAD SPARSGHARGLLLLGRALVEDGAVREGREHLERAVGLARRCGCVALARRARDELI AAG GRWREVTASPLDMLTGTERTVAGLVASGAGNREVAESLFVTVRTVELHLTSVYRKLGV

arrgdltealreagatarpaaerrpghakrrnp"

note="glycosyltransferase responsible for mycosamine httachment" SdS

gene="fscMI" 13522. .14898

.14898

gene="fscMI

```
/translation="mwlrwagdrsggaapgrsggagppslapsdarespvphrsravp
papplygraholdvlarhaddaragrerlylldgpagicktrallradlabdgplacmt
TLYGSCRATOVATCYSGVRALEGGIGLTGRKGRTS PILVGGARRIPALAADGPLACMT
TLYGSCRATOVATCYSGVRALEGGIGLTGRKGRTS PILVGGARRIPALAADGPLLVV
DPGSTFSVLQGLYWLAANLMADGPLVLVLDDVHWCDERSLRWLDFLLRADGLPLLVV
AAHRTGTGLTAPDALADLVAHHLPASLGLGPLDTAEVAELTAHS PPEODPLPSFVGRL
LSVYGGSPLEI VRLLRDLRSAGLGPDDTGTRALEAJAGGKVVAASVFGVLEHOPDWAV
VARAVAVLGDEDRTYLAALGRVSVVHVEEAVEI LRDAGLI HPGHLELSHDLVRAAVLD
AVGASGVAVLRRRAARLLSDYGRSPEEI ATOLLLVPGTPEDDWAVSVLRDAAAQAEORG
ACEAAARYLERVREAEPKDPDVLSRLGKALAETDPBARSVTLLHEAHSLITTDVRARAAT
AVQLGITCLAVQQSPDGARALTEALDALDAELGFBPEBADRELETTLESALLI VGSDE
KATLPDILRRTEGLTPOPGDTPAAGROOLAMLSVLSAREGGAEETVGRARRATARAPGV
PLGVWSLLFTSLALSLADENBAEEVLETVLRGSGDTAAVWTYVLALSTRSLFRLENG
AVPDAMADAGTALEILGQERWGDTAWPHTAYASVLTERGDPGRALEALDAL KR PHILD
AVPDAMADAGTALEILGQERWGDTAWPHTAYASVLTERGDPGRALEALDAL KR PHILD
RFWEYHWYLMARGRALAADGDLDGALQVFGSGGASNAEAGTINPVLAPWHLETACLL
RFWEYHWYLMARGRALAADGDLDGALQVFGSCGGASNAEAGTINPVLAPWHLETACLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CANPAVOPWRSLAARAHTI.GDTEBAARLVHEEVRLARRWGAAAPLGRAQLSLAVVTE
ENRVENLRAAVTTLSAASARTA YTRAVIELAAA BEREENERRTAVALGPAATVLPVAP
PPOGHIVPSAVARPPOGRPAVLITGRRITAKA POHDAVWIGLTAVBRETAALAAQGLONR
EIATELAVTTRAVELRLSGVYRKLA IRGREELRALVQEAEGS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NPVLFPWRPWAVGVHRRLGDIRTARSLAEEEYARAEQWGAPVGVGRALRLLGRLEDGG
RGIGLLREAVTVLRGSANQLELARALSTLAERLGGGAETEALAREAATLATSCGAPGL
AERAARGAGHERSGPPATPEDVLTPTERRVYGLACRGLTNQEIAGALGVSSRAVEKHLT
HAYRRLGISGRRELIVLFSRAEYAGTGD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LRLEARLHRCGHEDPHELAASAHRLKELGPEPPVDTGGERELTI ALLGAATLGCHLPA
SEVVRLAGRYULDREPATSAR HSTLEFLA I TMIAADS VEAVDSWLAVEHRANERGTTP
ANALVHIEQALVHLGGRELAQAREGSETALGMTEPAHQGLDTAATMTHAIVALESGDP
SLAEKVLRRASRIRPQGLTLTGILRLLEATREIAAGDQTGALDSLHSCGRQLEAAGWH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (10298. .13315)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (10298. .13315)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (7210. .10254)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VLRAAADTALRRGAPDTAAGYLCRALLDSPAAGVGRGRLLVELGTAERGFDPLACERH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein_id="AAQ82554.1"
/db_xref="GI:34766441"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
/product="FscRIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="fscRIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein_id="AAQ82553.1"
/db_xref="GI:34766440"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/product="FscRIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene="fscRIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (7210. .10254)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="fscRIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | AQAMTLLPEPRDRAVAALRISPTALGPAPLTAVDLLRQAAEDLGPADGLTGTDRDLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="putative transcriptional regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene="fscRIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  note="putative transcriptional regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
```

```
뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Sim.
Matches 1335;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                 18910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                       CTCCCCTCGCCGTTCACCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTTCCAGTACATC
      ATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCGGGCACGGC-----GCCAC
                                             CTGCCGCTGTGGGGGGGTGCAGTTCCACCCCGAGTCGATCGGCACCCAGGACGGCCACCGG
                                                                     AAGCCGCTGTGGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAG
                                                                                                                                                           GAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCATGGGCCTGCGGCACCCGCGAG
                                                                                                                                                                                                                                                                                               GAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGC
                                                                                                                                                                                                                                                                                                                                                                               GTCTGCCTGGGCCACCAGGGCATGGCCCTCGCCCACGGCCCCGGGTGGGCCCGGGCCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                    ercreccreeeccaceaecarceccaecrerreeeceaaccereerceececee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGGCCGACTTCGGCCTGTGCGCCCGGATCGCCGAGGAGGGCCGGCTGCCGGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGCCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCCGGCAGCCCCGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCCGGGCCAACGGCCGGGAACCCGAGGTCATCCGCAACGACGACCCGGCCTGGCGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACG---CCGACTGGTCGCGG
                                                                                                                               GAGCTGGAGGCCACCGCCTGGTCGGAGGACGGGGTCCTGATGGCGCTGCGCCACCGCACG
                                                                                                                                                                                                               CTGCCGCAGCCGCTGGAGGTGCCGGTACCACTCCCTCGCGGTGACGGAACTGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTCTGCTCGACGCGTTCGACAACGTGGTGCTCTCCCCGGGGCCGGGTACCCCACACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGCGCACCCTTCTCGTCGACAACTACGACTCGTTCACCTACAACCTCTTCCACTACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transl_table=11
/product="FacMI"
/protein_id="AAQ8255.1"
/protein_id="AAQ8255.1"
/protein_id="AAQ8255.1"
/db_xref="GI:34766442"
/db_xref="GI:34766442"
/translation="MOSAARPILFVSLPESGLLNPLLVLAGELARRGVPDLWFATDEH
/translation="MOSAARPILFVSLPESGLLNPLLVLAGELARRGVPDLWFATDEH
/translation="MOSAARPILFVSLPESGLLNPLLVLAGELARRGVPDLWFATDEH
/translation="MOSAARVIVDCVAGFGVDLALARGI PYLLAVPFVASNVLTSHN
PFGASYTPKSFPVPNSGLPARMSVRQKLANTLFKWRTLGMFLHPDMAALLREDAAIRK
ELGIAPPNAMTRVDEAAAAVVCSSVAELDYFPDIEDRVGKAGVTLPFLPEAFDDDEVTR
WLDAGSSVVYMGFGTITRLTREEVAALVEVARRMSGTHQFLMKLFKEQQHLLPEAGSL
PDNLRVESWVPSQLDVLAHPNVSVFFSHGGGNAYHEGVYFGKPQVVRFLWVDCFDQAV
RGRDFGISLTLDKRHTVDPDDVVDKLTRVTSDPAFRTEAERLGALQRAAGGRAAAADL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="F6cMII"
/protuct="F4AQ82556.1"
/protein_id="AAQ82556.1"
/db_xref="G1:34766443"
/translation="MAFFHPVSRPALDGRELEYVSDAVSGGWISSQGPYVRRFEEAFA
EWNGVAHGVACSSGTAALTLALRALNIGPGDEVIVPEFTMVASAWAVTYTGATPVFVD
CGDDLNIDVTRLEEKITFRTRAVMVHYVGRRCOMDAVMDLALQVRLRVEDSAEAHG
VRPVGDIACFSLFANKITAGEGGVCLTDDPRLAEQLAHLRAMAFTRNHSFLHKKLA
VRPVGDIACFSLFANKITAGEGVCLTDDPLALAGQLAHLRAMAFTRNHSFLHKKLAV
NYRMTAMQGAVALAQTERLDEILATRREIEARYDAGLKULPGITLMPARDVLWYYDLR
AERREELRAHLDARGIETRLFFKPMSRQPGYLDPVWPTLNAHRFSEDGLYLPTHTGLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="fscMII"
/note="putative aminotransferase responsible mycosamine biosynthesis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AADQEYITGAVRDFYRAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VTGLLPAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="fscMII"
14953. .16011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14953.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    37.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .16011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 769.8; DB 1;
Pred. No. 9.2e-55;
0; Mismatches 682;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                        417
                                                                                                                                                                                                                                                                                                                                      357
                                               19149
                                                                                                                                 19089
                                                                                                                                                                                                               19029
                                                                                                                                                                                                                                                                                               18969
                                                                                                                                                                                                                                                                                                                                                                               18909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18669
                       S
                                                                밁
                                                                                                   S
                                                                                                                                                밁
                                                                                                                                                                               S
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                20020
                                                                                                                                                                                                                                                                                                                  19960
                                                                                                                                                                                                                                                                                                                                                                                                  19900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19210
                            1555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1015
CTGGCCGGCCGGGAGAACGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCAAGGCCGACGTGCACGCCGGAACGGTCACGGTGAGAG----CCGACGGCGCCCAGCAGC
                                                                     ATCAAGGGCACGCGGCCACGCGCCACCCCGCAGGACGCCGCGCGCTCGTACGCGCC
                                                                                                       CGCGCCATCAGCCCCGTCCCCGTACGGCGCCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTG
                                                                                                                                                                                                                                                                                                                  CTGACCAACATGGCCGAGGCGGACACCGACCTCACCCCGTGGGCGGCCTACCGCGCGCTG
                                                                                                                                                                                                                                                                                                                                          CTGACCAACATGGTCACCGCGCCGACCGAGCGGCGCTGCCGCTGTCTACTCCGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                  CTGAAGCTGATCGACGTCTGCCAGCAGGAGATAGCCGCCGGGGAGACCTACGAGGTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                        CTCAAGCGCATCGACGAGTGCCTCAAGGAGÁTCCGCAACGGCGAGTCGTACGAGATCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGAGGCGCCCGTGTGCACGACGGGTCCGGTGGAGCTGCGCCACGACCGGGACGGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCGAGGCGGCGGCCTCCCCCTGGCCCCCGCGCGCCACGACAAGGACGCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCGACCGCCGGGGCCACGACGACGGCGCCCCGCGCCTGGCTGCGGGAGACGGCCGAGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCTTCGCCGACCGCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGAAGGCCGAGTGCGACGCGACGCGCGCACCGCTCACCCGATCCCGACGCCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGGTGCCCGAACTTCCCTTCGCGTTCGCGCTCGGCTGGGTCGGCTGCGTGCGTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCGCCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGGTCGAGAGCGCCTTCCTGACCTGGCTGGAGAACGACCTGGCGGGGGCTGCG---CACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGACGCGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCACCTACCGCGTCGCCGACGGCGTCGTCCGTCCGCGGCTCCGACGACCACGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGGGCGAGCTGGGCCAGCTCTCCGGTGATGGGCGACGCCTCAGGTCCCCTCGCCCGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCGAAGGCGCCTCGCGCTTCCCTTCCTCGGCGACCGCGGCCCGGCCCGCTCGCCGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCTTCGACTCGCTGTTCCGCACCGGCGACCACCCCTTCTGGCTCGACAGCAGCCGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGCCACGGCGGCTCCGGGTCATCGCCGAGTCGCTGCCCACGCGCTGGGGACGCCGAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGGTACGCCGCCGCCTGCCCCGGCGAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGGGCACGGCACGCTCCCGCCCCCCGCGCCCCGCGGAGACGACGGCCACCACCGGC 19269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGGCCGACTCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAA
                                                                                                                                                  AGCAGCTCTCCGGAGCGGTTCCTGCGCATCGACCGGCACGGGCGGATGGAGTCCAAGCCG
                                                                                                                                                                                       AGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGTCGAGTCCAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCACCGGCCTGGCCGTCCGCCCCCGGCCGAGCCGACCCCCGCCATGGTCTTCGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GGCACCACGTTCTGGCTGGACAGCAGCTCCGTC
                                                                                                                                                  20139
                                                                                                                                                                                           1494
                                                                                                                                                                                                                                                                         1434
                                                                                                                                                                                                                                                                                                                                                           1374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1014
                                                                                                                                                                                                                                  20079
                                                                                                                                                                                                                                                                                                                                                                                                                                           1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            651
                            1614
                                                                     20199
                                                                                                                                                                                                                                                                                                                                                                                                    19959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19329
                                                                                                                                                                                                                                                                                                                  20019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19506
```

밁 Ş

ર્

밁

र्

S 문 유 성

В S 밁 Ś S 밁 8 밁

```
JOURNAL
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 11
STH575648
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                     gene
                                                                                                          SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AJ575648
AJ575648.1 GI:41322765
AJ575648.1 GI:41322765
acyl-coA ligase; aurA gene; aurB gene; aurC gene
gene; aurF gene; aurG gene; aurH gene; aurI gene
y-cyidase; 0-methyl transferase; PABA synthase;
type I; transcriptional regulator.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Iteration as programmed event during polyketide assembly; molecular analysis of the aureothin biosynthesis gene cluster Chem. Biol. 10 (12), 1225-1232 (2003)
                                                                                                                                                                                                                                                                                                                                                               Submitted (07-JUL-2003) Hertweck C., Hans-Knoell-Institute, Beutenbergstr. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STH575648 29132 bp DNA line Streptomyces thioluteus aureothin biosynthesis (aurABCDEFGHI genes), strain HKI-22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptomyces thioluteus
Streptomyces thioluteus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       He, J. and Hertweck, C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomycineae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hertweck,C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14700630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCGCCTTCCCGG 20692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCAGCGCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCGCATGGTCACCGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            decaredeciacirerecereacedeces de la final 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGCTCGGATGGTTCGCCCTCAGCGGCGCCGCCGCCTCAGCATCGTCATCGGCACCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCTACGCGCCCGTGCACCAGCTGGTGTCCGACCATCCGGGGACGGCTGCGGCCCCGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGGCCGACGAGTTCGAGGAGACGGCGGTCAAGGCCGCCCCCCGCTGCTGCGTCTCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGCTCAGCGGCAGGCTGCGCTACGGCGTCGGCGCGCCGTCATCGCGCTCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGCTGGCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGGGCGATCGTGCCCTCCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGG 1854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCACCGCCGCCTACGCGCCGCCCTTCCCCGGCGCCCCATGACCGGCGCGCCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCTGGGGCGGTGCGCCGAGGTCGGCTCGGTCGTCGCCGACCCGGTGTTCCAGGTCGAG 20319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCCGGCTCTTCGAGGTGGAG 1674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGCCACCTGCGAGAAGGACCGCGCGCGAGAACCTGATGATCGTCGACCTGGTCCGCCAC 20259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCCCGGTGGCGGCGGTCCGGGCGGCCGTTCCCCGGCGGATCGATGACCGGGGCGCCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGTACGCGACCGTGCACCAGCTGGTCAGTACCGTCACGGCGCGGCTGCGCGAGGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to 29132)
                                                                                                                                                                                          /mol_type="genomic DNA"
/strain="HKI-227"
/db_xref="+~"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Actinobacteria; Actinobacteridae; Actinobacteridae; Actinobacteridae; Streptomyces
codon_start=1
                                                                 2154. .2969
/gene="aurD"
                                                                                                                                      'gene="aurD"
                                  function="transcriptional regulator"
                                                                                                                                                                     .2969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2047
                                                                                                                                                                                                                                                                                                                                                                                                  Bioorganic Synthesis,
. 11a, Jena, 07745, GERMANY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
esis gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene; aurD gene; aurE
gene; cytochrome P450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           polyketide synthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCT 23-JAN-2004
cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1734
```

```
/produci="auto" protein"
/produci="auto" protein"
/produci="auto" protein"
/produci="auto" protein"
/buxei="auto" protein ja="canolizateropication"
/buxei="auto" protein ja="canolizateropicateropication"
/buxei="auto" protein ja="canolizateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicateropicat
```

gene CDS

gene

gg

```
/Codon_start=1
/(ranis]_table=11
/(ranis]_table=11
/(ranis]_table=11
/product="paba synthase"
/protuct="paba synthase"
/protuct="paba synthase"
/protein_id="CAE02603.1"
/db_xref="01:41122770"
/db_xref="01:41122770"
/db_xref="01:41122770"
/db_xref="01:41122770"
/db_xref="01:41122770"
/db_xref="01:41122770"
/protein_id="mrVLLIDNYDXXTYNLFQLLAEVYGKEPTVLVNDDPSWPELDPA
/tranislation="mrVLLIDNYDXXTYNLFQLLAEVYGKEPTVLAWAEOGTVMALEHR
/tranislation="mrVLDGLEQNFTAVRXHSLRAAEPLEPELAGPAWAEOGTVMALEHR
/tranislation="mrVLDGLEQNFTAVRXHSLRAAEPLEPELAGDSGGLAETLIY
RHGHLARVHGGENDLFDGLEQNFTAVRXHSLRAAEPLEPELAGDSGGLAETLIY
RTGENTVAVRDAAGEARAEPGTIFEVLQORLEDRRSRAFGIEPGLNGGYVGYFGYELKG
RGENVHRSETPDAVMTFADRLIAVDLIAEKTYVVAVSGTGFGEDAARAWVTETAR
RARELPDAADAATAPSGQVDIAADRGQYVSDIKDCLDELHSGESYEICLINR
IRLPELKDPAGSAPAATAPSGQVDIAADRGGYVCSDERFIRIDROGVVESRPIK
GTAPRGEDPAADBALTVSLAASAKTRAENLMIVDLIRNDLGRVCEVGSVDVPAYMVTE
TYATYHQUTTYTGRILHDVDFVACVRACFPGGSNTGAPFLRTDRCDGARGIY
SGTIGYFGLSGAADLNIVIRTAVSTGTGTVIGTGGAIVLDSDPDEEFDEVLLKGHALV
SGTIGYFGLSGAADLNIVIRTAVSTGTGTVIGTGGAIVLDSDPDEEFDEVLLKGHALV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LHPALFDAALHAAFVGLPGAAADDAVTRLPFSWSGVALHATGAVRLRARI RFTGPES
LSVTNAADPTGRPVVTI ASLGMREVTAEBALHRAASAGTSLLRLEWQPAARPARLDE
ERWVWI IGMGAPGGGFERHDE PAGLRAALDAGATAPDVVVLAELPAAGDAADADTTGAA
HRAVIRVLAAVQDWSADDRLAASRLVVLTRDAVATASDAVPAPVLAAVWGLI RSAQAE
NPGRI VLADLOGRDESLAALPSALDTGEAQLAVRDGALVERRARVTTPGDRGAVALR
TDGTVLVTGGLGVLGRLVVRHLVTAHG I RRVLIVVSRSGGTGEGVADFTAELNAEGAEL
HVAAGDAADRAVLEGALASI PAEHPLTAVVHMAGVLDGVLTSLTPERADRVLRPKAD
AAWHLHELTAGODVPLVVFS SLSSVLGPAGOGSYAAANAFVDALVERRRAAGSPGVAL
GWGLWGARSGLTGDLDEADLRRWARTGVQPLSSDQGLALFDLARAADDPVVEPLHLDT
AALGGGDADDVPPLIKGLARTPSARRATVTPAABERPAGDDTLADBLARVPBAGDGAQLL
TLVRSHVAAVLGYDD PRTVGERRTFTD IGFDSLEALQLENRLNGATGLRLPATLVFDH
PTPVELGRVLRTRLVFDAPSAPDTAEAVTPPPAGDRAGAGCLRSAASLEEVFDLL
TLVRSHVAAVLGYDD PRTVGERRTFTD IGFDSLEALQLENRLNGATGLRLPATLVFDH
PTPVELGRVLRTRLVFDAPSAPDTAEAVTPPPAAFGRPGGNEAMEQLRSAASLEEVFDLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="aurH"
/codon_star
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="aurG"
11745. 126
/Godon_start=1
/trans[ table=11
/product="putative cytochrome P450"
/product="putative cytochrome P450"
/protein_id="CAE02604.1"
/protein_id="CAE02604.1"
/db_xref="G1:41322771"
/db_xref="G1:41322771"
/translation="MSTTAHTEPSWADLPFLDFTDPNFSWDSPEVAEAREKSWIARTP
/translation="MSTTAHTEPSWADLPFLDFTDPNFSWDSPEVAEAREKSWIARTP
LALLVLRYAEAOQLARDERLISGFRGLVDMVGTPBGPVGHFPHPLPALVMCQLIGFPL
CLATHEPTPRRITAQUPFVRSTVEQLIDKLPQGDEDFVGHFPHPLPALVMCQLIGFPL
EDYDTVGRLSIETNIGLALSNDQDILVEVEQGLGRMFDYLAAIEKKEVEPGDDITSD
IVRAFHGGVLDDYELRTLVATVLVAGYSTTNHGLALAMYDFAQHDDQMWKIKENPELA
IVRAFHGGVLDDYELRTLATRVAAAEDFEVNGVAIFTGTPVFWCAHVARDPRVFADADR
PGAVEEVLRWSPTLFVTATRVAAAEDFEVNGVAIFTGTPVFWCAHVARDPRVFADADR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13938
                                                                                                                                                                                                                                                                                                                                                                                                         /product="polyketide synthase
/protein_id="CAE02605.1"
/db_xref="GI:41322772"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="aurB"
15244. .21738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15244. .21738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VAGPDALPLRFGAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FDITVKREAPSIAFGGGPHFCLGTALARLELTEAVAALATRLDPPQIAGEITWRHELG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="aurH"
13938. .1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAHGLLEGAAEAP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="aurB"
/codon_start:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="aurG"
/codon_start
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .15158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                type
```

gene

SdC

gene

SgS

TGYTQAALFAHEVALHHLLTHWGITPDLLLGHSIGELTAAHVAGVLSLEDACALVAAF

```
GRIMQQLPGAGAMIS VQATEAEVLPWVTEHAHEMS I AAVNGPRS VVVSGAESA VLEFA
EHWKNEGRKTKRLEV SHAFHS PQNUGMLQEP RAVAEKLAFH PER I PVVSNNYGEVATA
EQLCSPAYWKHAREA VRHEDI IRRIVAEGAHVFI EVGPSGVUTAWAQOCLADEPGTV
TAAVSRGGRPEADAALAAVAEA YVHGVRVDWDR FFAGTGARRI DLPTYAFRRS FWI
QAAPDADVTTAGLAGLGHPILGASLELADAQGAALSGRLSARTESWLADHVVLGSTLV
PGTAVVEMAVRAGAETGCGRLAELTQEA PLAV PERGAVHLQVRVGPAGEGGHR PVGVY
SRPEDAEPDEBWACHARGVLAFEAARV PAGTGGAW PEGALAEV PLOGY PERLAAEGFA
YGPAFQGLTRAWRLGDEVLAE I TILPEGAGSGADR YGVHPALLDAALHTALLKEEASDT
SQVRI PFAMHEUS FIGGSAPVLARARITPSGTDTVSLALWDEHGTPVAS VGSLVSRPVS
ARQLRATRTHDTLERLDWVETTI TEPAARCCAVLGDDELAGALSVPAFALALLESADD
VBELVLYPCLGDDAEDDRADARSLTARVLGVLQAWVADEEWATTRLALVTRGAMSVT
DROQVTDLPAAAVWGLVRSAQAEHPGRFVLADLDGDTASAAALPGILAALESADD
ROLLATRTHDTLERLDWVETTI TPEAARCCAVLGDDELAGALSVPAFALALLESADD
VBELVLYPCLGDDAEDDRADABARSLTARVLGVLQAWVADEEWATTRLALVTRGAMSVT
DROQVTDLPAAAVWGLVRSAQAEHPGRFVLADLDGDTASAAALPGILAALESADD
READVLVPELARGVVSGTLVFPPGGTADWHLEITGGGTVDDLALTFFEBAAPLAFQV
RVANFAAGLINFROVVMALGWVDDRRALGGELAGI TGGCTVDDLALTFFEBAAPLAFQC
IGPVAVVDHRLIARGVSGTLVFPFGTAVGDRALGGELAGI TGGCTVTGCARTTPAAEDGGGG
IDVVLNSLAGEMADASLRLVRPGĞRF I EMGKTD I RDADEVAAA YEGVYYRA FDLMDGG
AECI AR I FAELLAL FEGGKI QLV P'TTWDVRQA PEAFRY FAQARHVCKI VLTV V PAWD
```

```
밁
                                                                     S
                                                                                                                             S
                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                     문
                                                                                                                                                           밁
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 1302;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                             12402
                                                                                                                                                                                                                                                                                                                                                                                                                                                      11985
                                                                                                                                                            12282
                                                                                                                                                                                                                                                                                                                                       12102
                                                                                                                                                                                                                                                                                                                                                                                               12045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11745
                                                                                                                                                                                                                      12222
                                                                                                                                                                                                                                                                             12162
                                                                                                                                                                                                                                                 472
                                                                                                                                                                                                                                                                                                                                                                                                                          295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    118
                682
                                                                                                                                                                                                                                                                                                          412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                           CCCGTGTTCGAGGTGATCGACCGGGGCCGTGGACACCGCGGAGCTGTTCACCACGCTGTAC
                                                                        CCGGACGCCGAAGAGGTACGCCGCCGGCTGCCTGCCCGGCGAG---
                                                                                                                                GCACGGCGCCACGGGGCCGACTCCCCGTACGAACTCCACGTGCGCCGCCGTCGACGTGCTG
                                                                                                                                                            GCCCAACTGCTCCAGAACTTCGCGAAGCTCGTCGGCGCCGAGTACGCCGCCGCGCCCCCGG
                                                                                                                                                                             CGCGAGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGC
                                                                                                                                                                                                                                                                             CCGGAGGAGCTGGAGGCCACCGCCTGGGCCGAGGACGGCACCGTCATGGCGCTGCGGCAC
                                                                                                                                                                                                                                                                                                CCCGACGAGCTCGAACCCCTCGCCTGGAGGGACGACGGGGGTCGTCATGGGCCTGCGGCAC
                                                                                                                                                                                                                                                                                                                                    GGCCTGCCGCAGAACTTCACCGCGGTGCGCTACCACTCGCTGCGGGCCGCCGAACCCCTG
                                                                                                                                                                                                                                                                                                                                                       GGCCTCCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGA----CCTC
                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGAACCCATGCACGGCCGGGTCTCCGAGGTTGCGGCACACCGGCGAGGACGTCTTCCGG 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGGTGTGCCTGGGGCACCAGGCGATCGCCACCACCACGGCGCGGACGTGGCCGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cceecceaccriceecriciecaegaecriciegaccecaegacacacccceericeric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAACGGGACTTCGGAATCAGCCGCCGGG---1CGATCACCGACAGCGGCCTGCCCGTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGAGGTGTACGGCAAGGAACCGACGACCGTCGTCGTCGACGAGGACCCGTCGTGGCCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          egceaegccaccee---ecaaccccccccrcercercccaaccaacceacceacreercece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGCGCACGCTTCTGATCGACAACTACGACGACGCTGTTCACCCACAACCTGTTCCAGTACATC
                                                                                                   GAACGGGCGCGGTGGGCCCGCCCCGTTGGAGGACGCCCCCCGGAGGCGCCCGGAACTGCGG
                                                                                                                                                                                                                    ACG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGACCCGGCGATGTTCGACTGCGTCGTCTCGCCCCGGCCCGGGCCGCCCCCAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cTGCCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCGGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                               -GGCACCACGTTCTGGCTGGACAGCAGCTCCGTCCTCGAAGGCGCCTCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34.0%;
Score 701.6; DB 1
Pred. No. 5.7e-49;
3; Mismatches 697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  697;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 29132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  84;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                639
                                                                                                                                                                                                                                                 531
                                                                                                                                                                                                                                                                                                                                                                  411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            117
                                                                         681
                                                                                                                                                                                                                                                                                                         471
                                                                                                                                                                                                                                                                                                                                                                                                                                                      12044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                             12461
                                                                                                                                                            12341
                                                                                                                                                                                         579
                                                                                                                                                                                                                      12283
                                                                                                                                                                                                                                                                                                                                     12161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11804
                                                                                                   12401
                                                                                                                                                                                                                                                                             12221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
```

1147 GCCGTCCGGCCCCCGGCCGAGCCCCCGCCATGGTCTTCGGGATCCCCGAGGGGGG 1206	12462 TCCGCGAGGGCCGGCTGCTTCTGGCTCGACAGCAGCAGCGGGATCGGGCCCGGGCCCGGGCCCGGCCCGGCCCCGGCCCCGGCCCC
	ATCATCGACCGCCTGGAGG ATCATCGACCGCCTGGAGG ATCATCGACCGCCCTGGAGG GCCTCAGCGGCGCCCCCCCCCC

용 성

Ś

8 8 8 8

皮

망

8

밁

밁

8

Ş

음 성

유왕

유

유 성

유왕

중 유

B

뮍

678CGAGGGCACCACGTTCTGGCTGGACAGCAGCTCCGTCCTCGAAGGCGCCTCGCGC 732		650 AAGAAGTACGCCGCGGGCTGCCCCGG	QY 590 ACGGGGCGACTCCCCGTACGAACTCCACGTGCGCGGCGGCGGCGGCGGCGGGCG	1573 52572	475 GAGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGG 534	Qy 1453 TTCCTCAC Qy 415 GACGAGCTCGAACCCCTCGCGCAGGACGACGACGACGACGACGGCTCATGGGCCTGCGGCACCGC 474	14 Qy 1393 14 Db 52752 3740	CCGGCGAGGACGTCTTCCGGGGG 357	Qy 238 GTCTGCCTCGGCCACCAGGCATCGCCAGCTCTTCGGCGGAACCGTCGCCCCCG 297	13 26	86 3	CTGGTCGCGG 117	OY 1 ATGCGCACGCTTCTGATCGACCACCACGACTACGACACCTGTTCACCCAGTACATC 60 QY 10.33 ATCGCCCT 0Y 1 ATGCGCACGCTTCTGATCGACCACCTGCTTCACCACCTGTTCCAGTACATC 60	σ ω	006618_58	06618_54	006618_50 5000001 5110000 Qy 793 006618_51 510000 5210000 006618_51 510000 006618_52 52000001 53319 006618_53 53000001 5410000 5410000 006618_53 53000001 5410000
CGGGCCTGCTTCCCCGGCGCTCGATGACCGGCGCCGAAGCTGCGCACGATGGAGATC 52333	TOOO TITOO COGGCCATCO ATGACO GGCGCCCAAGAAGCGCACCATGGAG	CAGCTGGTGTCGACCATCCGGGGACGGCTGCGGTACGACGCCGCCGCCGCGTA	GCHTCGCTCCACGTGCCCCGGCTCTTCGAGGTGGAGACTACGCCCCCGTGCAC	GACCGGGCCGAACCTGATGATCGTCGACCTGATCGGAACCTCAACAGCGTCTGC	CGGGGCGCACCGCGGAGGAGGACGACCGCCGCCCGACCTGGCCGGCC	TTCCTCACGATCGGCGCCGACGGCGCGCGCGCCCAGCCAAGCCCATCAAGGGGACCCGCCCCGCCCCGCTCAAGATCGACCGAC	CCGTACGGCCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGG	GCGCCGACGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCGTCCAGCCGCTC 	TGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACCAACATGGTCACC	TTCGGCCCCTGGCCCGCGCGCGCACAAGGACGCCTACCTCAAGCGCATCGACGACGIIIIIIIIII	CGCGCCCGGCCGAGCCGACCCCCCGCCATGGTCTTCGGGATCCCCGAGGCGGCGCCGGC GAAACGCTGCCCGCGTGGGCGAATCCGGCGAATTGGCGATCGAGTCCGCCGCCCGGCCTCG	GACGACGGCGCCCGCGCTGGCTGCGGGAGACCGGAGACCCTCACCGGGCCGGCC	ATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGACCGCCGGGCCAC	GGCGACCCGCGCACCGCACCCCGACGCGCTTCCTCTTCGCCGACCGCGCCGCGCGCG	TTCGAGTTCAACCTCGGCTACGTCGGCTACGTCGGCTACGAGGCTGAAGGCGGAGACCACC	TTCAACTACCTGGAGGAGCAGCTCGAACGCĆGACGGGTCCCCCGTCGCCCCCGGAACTGCCCCGGTATCTGTCCACCCAGCTGCGCGAACTGCCCGGAACTGCCCGCACTGCCCGGAGCTGCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCGCACTGCCCCCGCACTGCCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCGCACTGCCCCCGCACTGCCCCCCCC	GACGGCGTCGTCTCCGTCGCGGCTCCGACGGCACGACGCCGGAACGCGGCGCCCCTTC

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AP005025/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PUBMED
                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1933
                                                                                                                                                                                                                                                                                                                                                         Submitted (29-MAR-2002) Director-General of Biotechnology Center, National Institute of Technology and Evaluation, Biotechnology Center; 2-49-10 Nishihara, Shibuya-ku, Tokyo 151-0066, Japan (E-mail:bio@nite.go.jp, URL:http://www.bio.nite.go.jp/, Tel:81-3-3481-1933, Fax:81-3-3481-8424)
This work was dome in collaboration with Haruo Ikeda(*1), Jun Ishikawa(*2), Akiharu Hanamoto(*3), Chigusa Takahashi(*3), Mayumi Shinose(*3), Hiroshi Horikawa(*4), Hidekazu Nakazawa(*4), Tomomi Osonoe(*4), Norihiro Kushida(*4), Hisashi Kikuchi(*4), Tadayoshi Shiba(*5), Yoshiyuki Sakaki(*6,*7), Masahira Hattori(*1,*7) and Satoshi Omura(*1,*3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Omura, S., Ikeda, H., Ishikawa, J., Hanamoto, A., Takahashi, C., Shinose, M., Takahashi, Y., Horikawa, H., Nakazawa, H., Osonoe, T., Kushida, N., Director-General of Biotechnology Center, Shiba, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ikeda, H., Ishikawa, J., Hanamoto, A., Shinose, M., Kikuchi, H., Shiba, T., Sakaki, Y., Hattori, M. and Omura, S. Complete genome sequence and comparative analysis of the industrial microorganism Streptomyces avermitilis
Nat. Biotechnol. 21 (5), 526-531 (2003)
                                                                        Following url is also available. http://avermitilis.ls.kitasato-u.ac.jp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Shinose,M., Takahashi,Y., Horikawa,H., Nakazawa,H., Osonoe,T., Kikuchi,H., Shiba,T., Sakaki,Y. and Hattori,M. Genome sequence of an industrial microorganism Streptomyces avermitilis: deducing the ability of producing secondary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptomyces avermitilis MA-4680 Bacteria; Actinobacteria; Actinobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AP005025 BA000030
AP005025.1 GI:29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptomyces avermitilis genomic DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sakaki,Y. and Hattori,M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       metabolites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Omura, S., Ikeda, H., Ishikawa, J., Hanamoto, A., Takahashi, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales; Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptomyces avermitilis MA-4680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AP005025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Proc. Natl. Acad. Sci. U.S.A. 98 (21), 12215-12220 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .2692562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1572948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGCGCCC 2044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGCGGATCGGGGGGGGGGGGGATCGTGCTGGATTCCGATCCGGCGGAGGAGTATCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGGAGTTCGGCGTCGGCGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGTTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 298300)
                                                                                                                                                 National Institute of Technology and Evaluation School of Science, Kitasato University Institute of Medical Science, University of Toky
                                                                                                                                                                                                                                                           Kitasato Institute for Life Sciences, Kitasato University
National Institute of Infectious Diseases
                                                                                                                                                                                                                                                                                                                 finishing process and all annotation were . Ishikawa.
                                                                                                                              RIKEN, Genomic Sciences Center
                                                                                                                                                                                                                                     The Kitasato Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submission
organism="Streptomyces avermitilis MA-4680"
                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:29604584
                          298300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       298300 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                       University of Tokyo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complete genome, section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                      done
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BCT 10-MAY-2003
                                                                                                                                                                                                                                                                                                                                         by H. Ikeda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        52101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            52153
                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sg
```

```
avermectin gene cluster"
/codon start=1
/transI_table=11
/product="glycosyl transferase"
/protein_id="BAC68655.!"
/db_xref="GI:29604586"
                     /translation="mKGIVLAGGTGSRLYPLTRALSKQLLPVYDKPMIYYPLSVLMLG
GIKDILVISSPDHLEQFRRLLGDGSRLGLNIDYAAQQRPGGIAEAFLIGADFIGQDQV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FHRTHGLPVIITRCSNNYGPHQFPEKLIPRFVTHLLNGTKVPLYGDGENVRDWLHVDD
HCRGIALVAERGRPGEIYHIGGGTELSNRELTARLLDLLGVDWSMVEPVTDRKGHDRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MTGGAGFIGSHFVRRLLTGAYPAFTGAEVVVLDKLTYAGRLENLAPVLGSPSLIFVHGDICDGFLVADLMDGSDMVVHFAAESHVDRSVADAAEFVRTNVLGTHTLLRAATDAAVDRFVYISTDEVYGSIDSGSWTEDAFLEPNSFYSASKASSDLLARS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MSDHFLFMSAPFWGHVFPSLAVABELVHRGHHVTFVTGAEMADA
VRSVGADFLKYESAFBGVDMYRLMTEABFNAIMTTDEGMSMLRSVEEHVGKDVPDL
VAVDIATSLAWGRVLAASMSRPAMYVIPLFASAGRFSTMQGVLLDPDSAQVJAPPBFRS
EQMELFGLGALVPRLAELLVSRGITEPVDDFLSGPEDFNLVCLPRAFQYAGDTFDERF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="aveBI"
979. .2217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="reductase"
/product="reductase"
/product="laC68654.1"
/db_xref="G1:29604565"
/translation="MCVDRDGRGAGYTADLARTRGARAAWPEVADVSDGAAMERFAER
/translation="MCVDRDGRGAGYTADLARTRGARAAWPEVADVSDGAAMERFAER
VAETYGVVDLLVNNAGIGMAGRFLDTSVEDMQRTLGVNLWGVIHGCRLIGRQMAERGQ
GGHIVTVASAAAFQFTRAVPAYATSKAAVLMLSECLEAEFAEFAGVGVSVVCPGGFVRTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="or: 208. .921
SLVLGDNIFHGMGFSHLLRSHTRDVDGCVLFGYAVTDPERYGVGEVDASGKLLSVEEK
                                                                             /product="glucose-1-phosphate thymidyltransferase"
/protein_id="BAC68657.1"
/db_xref="GI.29604588"
                                                                                                                                                                                                                                avermectin gene cluster"
                                                                                                                                                                                                                                                                                                                          complement (3187.
                                                                                                                                                                                                                                                                                                                                                                                       complement (3187.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         avermectin gene cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (2123. .3190)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGALRAADETERFLRRTRRH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AFVGPCLGKRRGLGEWTPPGSGHPVVLISLGTVFNRQLSFFRTFVRAFTDVPVHVVIS
LGKGVDPDVLRPLPPNVEVHRWVPHHAVLEHARALVTHGGTGSVMEALHAGCPVLVMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  avermectinius"
                                                                                                                                                                                                                                                                                                                                                                                                                ARSRPLPAGRRPPRPWPAASA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="dTDP-glucose 4,6-dehydratase"
/protein_id="BAC68656.1"
/db_xref="GI;29604587"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (2123.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MSRFTPRLRAAVARMDPPS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FASAMHFAGVPRLEQERLRALFAGRGCSAEKVAAAVLRSVARDSAVVTVTAEARLSRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCIMB 12804 or NRRL 8165.~synonym: Streptomyces
                                                                                                                                                                         /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                               /gene="aveBIII"
/note="SAV947
                                                                                                                                                                                                                                                                                                                                                                                                                                                  YSLDISKISAELGYAPRVPFEEGLAQTVQWYVENRTLWEPLTARPELPVSDGASGAET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="aveBII"
/note="SAV946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LSRDAQVTGRRIAELGLGRMVQPEEVTATTLRRHVLDIISDDAITRQVRQMQRATVEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            not involved in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="SAV944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /mol_type="genomic DNA"
/strain="MA-4680"
                                                                                                                                                                                                                                                                                                                                                      gene="aveBIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="aveBII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="SAV945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'gene="aveBI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="orf-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="This strain is also named as strain: ATCC 31267,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         db_xref="taxon:227882"
                                                                                                                                                                            table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 orf-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            biosynthesis of avermectin"
                                                                                                                                                                                                                                                                                                                                                                              .4086)
                                                                                                                                                                                                                                                                                                                          .4086)
```

```
Query Match
Best Local Similarity
Matches 1262; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SgS
                        Conservative
                                                                                                                                                    /transl_tabl-
/prod:
                                                                                                                                                                                                                                                                                                                                          /protein_id="BAC6660.1"
/db_xref="G1:29604591"
/db_xref="G1:29604591"
/translation="mostradadhtepstahraarrrparvprplirrrgrhvrggdopp
rtanslation="mostradadhtepstahraarrrparvprdirgrhvrggdopp
rtgwwtrrsgahrfrveripfbemostahrafytholksprvoatrsnytk
PEWQOPIHOPEIGILGILAKKFDGVLHFLMOAKMEPGNINIVOLSPRVOATRSNYTK
VHGGAAVKYLEYFTOPRATTVVDVLQSEHGAMFHRKFNRNIVETDEDVPLDDDFRW
LTLGQIGELMHADNLVNNDARTVLACLPTPFDEPALLHSDAELLSWYAAERSHHSVHA
LTLGQIGELMHADNLVRNDARTVLACLPTPFDEPALHSDAELLSWYAAERSHHSVHA
LTLGQIGELMHADRYFRVAVEVEASNREVAAWTOPLLEPCHGITAF
LTRRIGGVPHLLAHGRVEGGFLDTIELGTVQYTPRNYAHLTGARPRFLDLVLEAAP
DRIRYAAVHSEEGGRFLHAQARYLFVEADESQAPNDPPGYRWCTPGQLTQLLRYGRY
VNVQARTLLSLLTTRAVEL"
                                                                                                        /transl_table=11
/product="dTDP-6-deoxy-L-hexose 3-0-methyltransferase"
/protein_id="BAC68661.1"
/db_xref="GI:2960450""
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="MGRFSVCPPRPTGILKSMLTTGMCDRPLVVVLGASGYIGSAVAA
ELARMPVLLRLVARRPGVVPPGGASAETETTADLTASEVALAVGDADVILLVARLT
GGAAMRAAESDPVAERVNVGVMHDVVAALRSGRRAGPPPVVVFAGSSVQVGRPGRVD
GSEPDEPVTAYARQKLDAERTIKSATVEGVLRGISLRLPTVYGAGFGPQCMGVVQAMVL
RALADEALTVMNGSVVERDLVHVEDVAQAFVSCLAHADALAGRHWLLGSGRPVTVPHL
RALADEALTVMNGSVVERDLVHVEDVAQAFVSCLAHADALAGRHWLLGSGRPVTVPHL
                                                                                                                                                                                                                                                          complement (7442. .8215)
/gene="aveBVII"
                                                                                                                                                                                                                                                                                                                          complement (7442.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 avermectin gene cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (6036. .7445)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="g1:29604590"
/translation="WTIGRPERSADRPAPPAGARATAAGVTVRRLVVEGAVEFTPTV
/translation="WTIGRPERSADRPAPPAGARATAAGVTVRGVHFTATPPGGAKYVHC
ARGRALDFVVDLRTGSPTFGQWDSVLLDQERFRSVYLPIGVGHAFVALEDDTAMVYLM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (5297. .5974)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (5297.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     avermectin gene cluster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GYGEYLMSIAAEAAVRSPGCAYS"
4212. .5243
                                                                                                                                                                                                                  avermectin gene cluster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (6036. .7445)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSGYVPQNEHALSPEDPDLALPLGHHLGRAPILSERDRRAPTLQQALRRGMLPEYRAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                avermectin gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FGATAAGVSARTGRPAVPVTAVDPPAMATAADFHGTVVDSSAFRAVTGWRPRLSLQEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
/product="dTDP-4-keto-6-deoxy-L-hexose 4-reductase"
/protein_id="BAC68658.1"
/db_xref="GI:29604589"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="aveBIV"
4212. .5243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PTAPRSNLAITGLYLYDNDVIEVARGIRSSARGELEITDVNRAYLAEGRARLVDLGRG
FTWLDAGTHDSLMHAGQYVQVLEKRQGVRIACLEEIAFRMGLIDADDCYLRGVELAGS
                                                                                                                                                                                                                                           /note="SAV951
                                                                                                                                                                                                                                                                                                       /gene="aveBVII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
/transT_table=11
/product="dTDP-4-keto-6-deoxyhexose
/protein_id="BAC68659.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="aveBIV"
/note="SAV948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 product="dTDP-4-keto-6-deoxy-L-hexose2,3-dehydratase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="SAV950"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="aveBVI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene="aveBVI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="SAV949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="aveBV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="aveBV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "VYAAVMHOL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
                                          29.4%;
                          0
                                            Score 606.2; DB 1;
Pred. No. 1.1e-41;
                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cluster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .5974)
                                                                  Length 298300;
                        Indels 138; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3,5-epimerase"
                        9
                                          문
                                                                           Ś
                                                                                                                              밁
                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
Ś
                                                                                                                                                               Ś
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267551 TGAGCCTGGAGCCCACCGCCTGGGCGGAGGACGGCGTGCTGATGGGACTGCGGCACCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          267851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         581
  965 AGACCACCGGCGACCCCGCGCACCGGTCCCCGCACCCCGACGCCGTTCCTTCGCCG 1024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N
                                              GACTGCCGTTCGACTTCACCGGCGGGTATGTGGGCTACTTCGGCTACGAGGTGAAGGCCG
                                                                             AACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAGGCGG
                                                                                                                              CCAGCGTCTTCGACTACCTGAAACGGCAGTTGGTGACCCGTCAGGT---GGATGCCACGG
                                                                                                                                                                      GCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCGCCCCG
                                                                                                                                                                                                                    ACGTCGAGAGCGGCCTCTGTGAGATCGAGCGGCCCGGGCCCCGTGCGCAAGGTCAGGG
                                                                                                                                                                                                                                                          GCGTCGCCGACGGCGTCGTCTCCGTCCGCGGCTCCGACGACCACCACCACCGACGCGGC
                                                                                                                                                                                                                                                                                                  AGTCCCGTTTCTCGTTCTTCGGTGACGGCACCGGACCGCTGGCCGAGTTCGTACGGTACG
                                                                                                                                                                                                                                                                                                                                            ccrcecerrererereseceaceaceaceaceaceaceaceaceaceaceaceacerace
                                                                                                                                                                                                                                                                                                                                                                                                                 CCCÁCCGCCTTCÁCACCCGGCGGATCGACGTGGCCGTGGACGCCGAGGCGGCCTTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAGGTACGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGAGGGGGCCGGGCACCCCGCCGTGCTGGTCCCCCGGCCCCGTCGCGTGGCCCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGCCCGTACGTCCGGAACGCGCACGACCGAGCCCCCGTGCGCCCCCGTCCCCAAGCG 267312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGATCATGCCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCCCCAGCAGTTCACCGCGGTCCGCTACCACTCCCTGTCGGTACGGGAACCGCTGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACGTGACTTCGGCATCGTCGGCGAGCTGCTCGCCGCGGCCCCCGTGCCCGTGCTGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCG---TCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGAGGTGAACGGCGAGGAGCCGGTGGTCGTCCTCAATGACGCCCCGCCGGACGACATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGAAGACCCTGCTCATCGACAATTACGACTCGTACACGTACAACCTGTTCCAGCTGATCG
                                                                                                                                                                                                                                                                                                                                                                                      GGATGTACACCGACGCGCCCCGCGCGTTCTGGCTCGACAGCTCCCGGGTCGAGGAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGCGTCATGGGCCTGCGGCACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGA----CCTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCCCCGCCACGGCCATCTGTCCACCGTCCGGCCAACGGCCAGGACCTGTTCGAGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTGCCTCGGCCACCAGGGCATCGCGGCGGGGGGGGCCTGGGTGACCCCGGCACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGATCTCCGGGATTTCGCCAACGTGGTGGTGTCGCCGGGGGCCCGGACACCCCGCGAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCGCACGCTTCTGATCGACAACTACGACT¢GTTCACCCACAACCTGTTCCAGTACATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACGGCGCCACGGGGCCGACTCCC
                                            266895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      475
                                                                                    964
                                                                                                                                                                        904
                                                                                                                                                                                                                                                                                                                                                                                                                                 724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        415
                                                                                                                              266955
                                                                                                                                                                                                                                                                                                                                              784
                                                                                                                                                                                                                                                                                                                                                                                      267132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       267432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          267792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                    267012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             267252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    267672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             267852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  267612
```

```
S
                                                           В
                                                                                                Ś
                                                                                                                                             밁
                                                                                                                                                                               Ś
                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                               뭐
                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭉
                                                                                                                                                                                                                                                                                                                                                                                                   266129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 266549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      266669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  266309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1562
                       ည်
                                                                                                                                                                           GATGGTTCGCCCTCAGCGGCGCCGCCGCCTCAGCATCGTCATCCGCACCATCGTGCTGG
                                                                                                                                                                                                                                                                                                                                           CCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTCG
                                                              GCGAGTACGACGAGATGCTGCTGAAGACGGCCGCACCGATGCGCGCCCCACCGCGACCGGA
                                                                                                                                                                                                                              GCTACTTCGGGTGCAGTGGGGGGCGCGGACCTCGCCATCGCCAGCCGCACGGCCGTGTTCA
                                                                                                                                                                                                                                                                                                                                                                                              TGGACTGCGTACGTGTCTGCTTCCCCGGAGGTTCGGTGACCGGGGCGCCGAAACTGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCCTGCGTACGCCCCCCTTCCCCGGCGCGCTCCATGACCGGCGCGCCCAAGAAGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCACCGTGCACCAGTTGGTCTCCACCGTCGAGGGGCGGCTGCGCGAGGGCATCGGAGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCACCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGGGTCTGCCGGACCGGGACGGTGAAGGTCACCCGCCTGATGGCGACCGAGACGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGACGÁCAAGACCCGCGCAGAACCTGGTGATCGTCGACCTGCTCCGCAACGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCA 1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGACCCGCCCCGGGGGCGCACCGCGGAGGAGGAGGACGAGCGGCTCCGCCGACCTGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCCCGAGCGGTTCCTCACGATCGGCGCCGACGCGGCGTCGAGTCCAAGCCCATCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGCGGCCAGGCTGCCCGCCCCGTACGACCCCTACGACTTCTACCGGGTACTGCGTCGTC 266490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACATEGTCACCECECEACCEAEGCCACEGCCCTECCECTACTCCECECTECECECCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACCCCCCCTCGATGCCGTGGAGCCGTGGCTGGTCCGCGACCGTACCTCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTGTCTCGCCGAGAACACCCGGCAGGGCGCCACAGCAAGCGGCCGACTGGCTCGACGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCGGCTGATCGCAGTGGACCATCAGGACGGA------
                                                                                                    AGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGCG
                                                                                                                                             CCGACGGGGAGATGCACCTCGGCGCGGGGGGGGGTGCGATCGTCCTCCGGCTCCGATCCGGTCG
                                                                                                                                                                                                                                                                                                             CGATGGAGATCATCGACTCGCTGGAGACCGAGGCCCGCGGGGTGTACTCCGGAGCCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCCGGCTCTTCGAGGTGGAGACCTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCACCGCGCGCGGGGAGCGGCCGGAGGAGGACGCCCGGCTACGGGACGCGCTCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCCCGAGCGTTTTCTGCGGATCACCCGCGACGGCGTCGCCGAGGCCCAGACCCGTCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCGACCCGGCGCCTACGCGGCCTATCTGCGGTTCGGTGACCTCGATGTGGCCGGCTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAGCCCCGTCCCGTACGGCCCCCGCTCCAGTTCCCCGAACTGTCGGTGCTGAGCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGCCGGCTTCGGCCCCCTGG----CCCGCGCGCGCCACGACAAGGACGCCTACCTCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGATGGCCCAGCTCAGTTTCGTGTCCTCGGCCAAGCCGACCGCCCCGCCGCCGCCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCCGTCCGCGCCCGGCCAACCCCCCCCCATGGTCTTCGGGATCCCCGAGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGGCCACGACGACGCCCCGCGCCCTGGCTGGCTGAGACGGCCGAGACCCTCACCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCGCGCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GCCACCTACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1144
                                                                                                                                                                                                                                                                                                                                                      1861
                                                                                                                                                                                                                                                                                                                                                                                                                                       1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1084
                                                                                                                                                                                     1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1204
                                                              265830
                                                                                                                                                                                                                            265950
                                                                                                                                                                                                                                                                                                             266010
                                                                                                                                                                                                                                                                                                                                                                                              266070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                266130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 266190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                266250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 266310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                266430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  266550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 266610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   266670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  266730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     266835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
MEDLINE
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
AP005217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POCUS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                         gene
                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                rRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      265829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nakamura, Y., Tkeo, K., Suzuki, M. and Mashima, J. are at the National Institute of Genetics, Mishima, Shizuoka, 411-8540 Japan Itch, T. is at the Japan Biological Information Research Center, Koto-ku, Tokyo, 135-0064 Japan Yamagishi, A. is at Tokyo University of Pharmacy and Life Science, Yamagishi, Pokyo, 192-0392 Japan Nishio, Y., Usuda, Y. and Sugimoto, S. are at the Ajinomoto Co., Inc., Kawasaki, Kanagawa, 210-8681 Japan The other authors are at the National Institute of Technology and Evaluation, Shibbya-ku, Tokyo, 151-0066 Japan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     National Institute of Technology and Evaluation, Biotechnology Center; Nishihara 2-49-10, Shibuya-Kw. Tokyo 151-066, Japan (E-mail:bio@nite:go.jp, Tel:81-3-3481-1933, Fax:81-3-3481-8424) Kawarabayasi, Y is officially affiliated with the National Kawarabayasi, Y is officially affiliated with the National Constitute of Advanced Industrial Science and Technology, Tsukub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kawarabayasi,Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Comparative complete genome sequence analysis of the amino acid replacements responsible for the thermostability of Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nishio, Y., Nakamura, Y., Sugimoto, S., Matsui, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Corynebacterium efficiens YS-314
Corynebacterium efficiens YS-314
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AP005217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (17-MAY-2002) Director-General of Biotechnology Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genome Res. 13 (7), 1572-1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                efficiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gojobori,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AP005217 BA000035
AP005217.1 GI:23492722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Corynebacterium efficiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ibaraki, 305-8566 Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22723752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Corynebacterineae; Corynebacteriaceae; Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .2840036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    warabayasi,Y., Yamazaki,J., Hino,Y., Kikuchi,H.
irector-General of Biotechnology Center.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 300750)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      265827
                                                                             /gene="rrnA 16S"
/product="16S ribosomal
/note="CErRNA01"
complement(2042..2215)
                                                                                                                                                              /gene="rrnA_16S"
529. .1936
                                                                                                                                                                                                                                               /translation="MDQAPSGCLVDCVHGYIFYDTPVPMLLFPVGTSGNRKIVLDLFNHYFWLNKPDRILTPLMSGCGCLFGWVIGLFTPWHTHVYVCVVFCGEFDPGSGRTLAAC
                                                                                                                                                                                                                                                                                      /product="hypothetical protein"
/protein_id="BAC17695.1"
/db_xref="GI:23492723"
                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Corynebacterium
/mol_type="genomic DNA"
/strain="YS-314"
/db_xref="taxon:196164"
                                                                                                                                                                                                                          LTHASRTMKPCLQGGLVANG"
                   /codon_start=1
/transl_table=11
                                                           /note="CE0886"
                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
product="hypothetical
                                                                                                                                                                                                                                                                                                                                                                                            'note="CE0885"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .300750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300750 bp DNI
ens YS-314 DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kawarabayasi,Y., Usuda,Y., Kimura,
Yamagishi,A., Kikuchi,H., Ikeo,K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (2003)
protein"
                                                                                                                         RNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genome,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCT 24-JUL-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tsukuba,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ,E.,
```

rrna

gene

rrna

SgS

`; ;

```
translation="mpcfpfsqirqtkytstapklgdimkkdspyptltgwleqlddd
Qlsgilrnrpdtalplppglgslaarlqlrasiqrayhklsalelayleaaanagael
Npitapeyverhralrhsaayptaeqigealnrlrqlalvfggerfiilpetwatlp
                                                                                                                                                                                                                                                                                                         complement (9548. .11851)
/note="CE0892, similar to AE006976-11|AAK45126.1|
                                                                                                                                                                                                                                                                                                                                                              LAATAHTKTRVVRRILEQHQGQPTLIIGAYLDQLEELGAEFDAFIVDGKTSNKKRGEL
FDRERSGELAVLVVSKVANFSIDLPEAAVAIQVSGTFGSRQEEAQRLGRLLRPKADGG
EAHFYSVVSRDTLDTEYAAHRQRFLAEQGYAYRIIDADDLLFPITEKET"
                                                                                                                                                                                                                                                                                                                                                                                                                                                VHTYRITPLALMNARAAGHDAEQVVDVLERYSRFPVPQPLLVDVAETMSRYGRVRMHK
HPAHGLILESSEPALLVEISRHRKIKPMLGQQLDFETIAVHPEERGRLKQELLKIGWP
AEDLAGYVDGEAHPIALSTEVEDWSLRDYQQXADSFFEGVVVLPCGAGKHVVGA
ASMARAQATTLILVTYTVAGRQWKDELLRRTTLTEDEIGEYSGERKEIRPVTIATYQV
VTRRTKGEYKALELFDSRDWGLIIYDEVHLLPAPVFRMTSDLQSRRRLGLTATLVRED
GREGDVFSLIGPKRVDAPWKDLEAQGFIATADCVEVRTTMTDAERMVYATAETADRYR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="htthsspdvdbayarknnbeplrdtkrlqisafefglvllaiggvl
yyllagavmgmmvlivmgimalisfvnipvlerqvgsabslyrysplveavnabindr
dvvllalvntnvdetlpermglaverinncgvhdrkulgervbsvavsgrrtiroqdhm
dbisempitmgttdadvvrrabektiphdlumvklbknrnrldbvkntrmnllvl"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ASLPGMWDRTITVSSAAKTFNVTGWKTGWALAPAPILEAVIRAKQFMSYYGATPFQPA
VAHAVAHEKPWVKQWRKGLQNKRDILTDALTQAGLKVHDSHGTYFVVADIGERDGAEF
CFDLIDRYGYAAIPVQAFVDKPEQWSSKVRFAFCKQEDTLREAAQRLRAAGSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /translation="mrnkyvverlrpfgetifatmtQraneagainlgQgfpdedgdpa
pmleiasQQilggnnQysggrgdlglrtavasdrhkrfkldydpdtevlitvgateai
sasvlglvepgdevivlepyydayaaialagatrvavplkgedntwvldtdavhaav
                             TNWQLLPEEHGRSLTFGEASQSIEALPARHRKILVTLVTSNGLGLTRDAALSADPARP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="putative DNA helicase"
/protein_id="BAC17701.1"
/protein_id="BAC17701.1"
/db xref="GI:33492729"
/db xref="GI:33492729"
/translation="MAFGDGPLIVQSDKTVLLETGHDLAGEARAALAPFAELERAPEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (7822. .9495)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (7180. .7821)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TKKTSMI I VNS PHNPTGSVFSKRSLEALAGI ARAYDLLVLSDEVYEHLTFDKVSHTAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="CE0889, similar to AX063829-1|CAC25156.1| percent identity: 79 in 387 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5925.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="rrnA_23S"
2399. .5481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MSSQTPNSMPPTYHHHLGDVFADPWVMIHPITTCWWQPHPGSNT
NNPPHEHSPWWVY"
                                                                                                                                    /product="conserved hypothetical protein"
/protein_id="BAC17702.1"
/db_xref="GI:33492730"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="hypothetical
/protein_id="BAC17700...
/db_xref="GI:23492728"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="putative aminotransferase"
/protein_id="BAC17699.1"
/db_xref="GI:23492727"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="rrnA_58"
/product="58 ribosomal RNA"
/note="CErRNA03"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="CE0890"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="BAC17696.1"
/db_xref="GI:23492724"
  [PQLIKAGLLSRVDEQTVKLPGVVRRVLEGQEDTAWRVVPVEPSAVPGADDAGIAAGI
                                                                                                                                                                                                                                                       codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="CE0891, similar to AL583924-93|CAC31112.1| percent dentity: 75 in 547 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          transl/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="CErRNA02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        product="23s ribosomal RNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="rrnA
                                                                                                                                                                                                                                                                                 dentity: 36 in 741 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .5481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .5725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rrnA_58"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _table=11
                                                                                                                                                                                                                               table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               αι protein"
1.1"
                                                                                                                                                                                                                                                                                                            percent
                                               밁
                                                                                                       Ś
                                                                                                                                                                    밁
δ
                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                 Best Local Si
Matches 1164;
                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sg
                                                    184949 AGGAGGTCACCGGTGCGGCACCGACGGTGCTGCCCAATGATG-----
                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                       184889
122 CCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCCGGCAGCCCCGGCACCGGGAAC 181
                                                                                                            62
```

SgS

SdS

SdS

```
GCGAGGCCACCGGGCAACCCCCGTCGTCGTCCCAACGACGCCGACTGGTCGCGGCTGC
                                                                                                                      TGCGCGTACTGATCATCGACAATTATGATTCCTTCACCTTCAACCTCGCCACGTATGTGG
                                                                                                                                                               TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/trans1_table=11
/product="hypothetical protein"
/product="hypothetical protein"
/product="hypothetical protein"
/product="hypothetical protein"
/product="hypothetical protein"
/product="hypothetical protein"
/protein_id="BAC17706.1"
/db_xref="GI:23492734"
/translation="MASRKTKRKNFIQIATLLVAVVVVVVISVVFQNWWNNRPEPEPE
/translation="MASRKTKRKNFIQIATLLVAVVVVVVISVVFQNWWNNRPEPEPE
/TVSITASSPAGEIEVFPYSICEPGVECAENEVPTLEVGADEELRLTIPEIIHDDDMYL
LTIYDDPAANDEFYHTSYETTEVTVPGGSVDPVTEGGERPRLVVVEVTSVMIGTDDNGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="putative cold shock protein"
/protein_id="BAC17705.1"
/db_xref="G1:23492733"
/translation="MPVGTVEWTOPERGFGFVSNPGGEDCFVGKQVLPKGVTELHQGQRIEFDFAAGRKGPQALRVKVLETFRRRPQHTYKPEELNGIISDMVTMLEGTVQPALLKGYPRRKVGRQVAKILRAVAKELEA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EVARLQRMLIDALSTAPASTIKEGALGVRMVTRLTRELQVDEQQVARVVSLGVSSGLI
RRGVEDPLPADDDGGDYIAFTEVÅDEWLQATILÆGLAHLMRGWWTQTVAAWLVGEADE
KNKPIHLLSPASRRDALPETRAMÍLQSLTRVGEEQLAHLMRGHVERAF
KNKPIHLLSPASRRDALPETRAMÍLQSLTRVGEBOLADLFFHHPLAASRIPRETIV
LLEEBARWIGAVAGGGVTSPARVLTQAPAGGVIPEIADIAVAVRAPKPUDYFIVQADYTV
MVPGPLQPEMQKIIGQLADLESPGLASVYRISEASLRHAMDLGLTATELEDFLTQHSA
TGLPQSVAYLLQDIARRHGTLRGGPALCYLRSDDPALLHSAVEAAGALGLRQIAPTVA
                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(14424. .15254)
/note="CE0897, similar to AE001874-1|AAF09704.1| percent
identity: 40 in 267 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="GI:23492732"
/translation="MLFMGRH2KTATPFVKMAATTVAFGAAAVAFAPAASAAPDSDW/translation="MLFMGRH2KTATPFVKMAATTVAFGAAAVAFAPAASAAPDSDW/brancesgammainfuncyhggiopspstwrayggddefappayayatreqoinvasstagaratvdtntnevvgss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DLNTVQGIYDAVSGTLAQYGVQVPAEIQAHYNAFIGR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(12229. .12822)
/note="CE0894, similar to AX133781-1|CAC38957.1| percent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DMEFPVPAETIGYVHPYTRINR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VSNASLI EVI TALRKAGMQPVAEDALGASLDLAPRPARVPAAEQPRSAGPLDESRI RA
AVAAI RREEVARTGTVSDQPTLAVLQAAVRGQRTVTLGFVDKQGVAVHRTVKPLTVNA
                                                                                                                                                                                                                                                                                                                                                          /product="putative glutamine cyclotransferase"
                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ETPYTTTWSLATVEQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="CE0896"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (13881. .14408)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13342. .13725
/note="CE0895,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="conserved hypothetical protein"
/protein_id="BAC17704.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         identity: 71 in 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="conserved hypothetical
/protein_id="BAC17703.1"
/db_xref="GI:23492731"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GQVDALDESTGAVHRFMLHRITEVIVD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dentity: 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation="MGNMANVEKKGYVDPAWPDHDPSEGHVVTELIAPYAGASSPWGD/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="CE0893,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transI_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               dentity: 50
                                                                                                                                                                                                                                                                23.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .13725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                start=1
                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                    Pred. No. 2.4e
); Mismatches
                                                                                                                                                                                                                                                                                               Score 478.4; DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     in 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     similar to AE006977-4 AAK45135.1 percent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            similar to AL583924-91|CAC31110.1| percent
n 62 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aa"
                                                                                                                                                                                                                                       2.4e-31;
.ches 676;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein"
                                                                                                                                                                                                                                          Indels 180; Gaps
                                                                                                                                                                                                                                                                                                  Length 300750;
-- CGCAGATCG 184999
                                                           121
                                                                                                                                                                              61
                                                                                                                      184948
                                                                                                                                                                                                                                          10;
```

9 9 9 9 9 9 9	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	В
962 CGGAGACCACCGGCACCCGCACCGCACCCCGACGCCGCACCCCAGGCCCGACCCCGAGCCCCAGGCCGCACCCCGAGGCCGCTTCCTTTCG 1021	182 GGGACTTGGGAATTCAGCACGGGGGGGGGACGATCAACCGACCTGCCCGTCCTCCGGGATCT 241 185060 CGGATTTCGGCAGCTGCCGCGGGGTGATCGAACGGGTCTCGGGGTCTCGGGGTCTCTCGGGGAACGTTCGGCCGGAACGTTCGGCCGGAACGTTCTCGGGGGTCTTCGGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGAACGTTCGGGGGAACGTTCGGGGGAACGTTCGGGGAACGTTCGGGGAACGACGGGGTCCCGGAACGTTCGGGGGAACGACGGGGGGCTCCCGAACGACGACGACGACGACGACGACGACGACGACGAC	185000 ACGAGACGCTGTTCGACGCCGTCATCTCACCCGGCCCCGGCCACCCCGGGGTGGCGG 185059
RESULT 15 A48326 A48326 A48326 VERSION A48326 VERSION A48326 VERSION KEYWORDS Streptomyces pristinaespiralis ORGANISM Streptomyces pristinaespiralis Bacteria; Actinobacteria; Actinobacteria; Actinobacteria; Streptomyces. REFERENCE AUTHORS Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, F., Crouzet, J., Barriere, J., Debussche, L., Famechon, A., Paris, J. and Dutruc-Rosset, G. TITLE STREPTORAMINES AND METHOD FOR PREPARING SAME BY MUTASYNTHESIS Patent: WO 9601901-A 4 25-JAN-1996; RHONE POULENC RORER SA (FR)		Db 185914GCTGCCGCCCCGGCCGCCCAGCTCACCGTCCGGGATGACCGCGACAGCTACCTGGACA 185971 Oy 1262 GCATCGACGAGTGCCTCAAGGAGATCCGCCAACGGCGAGATCCTGACGAGATCTGCCTGACCA 1321

```
밁
                  8
                                               日
                                                                Ś
                                                                                     밁
                                                                                                              5
                                                                                                                                            밁
                                                                                                                                                              ठ
                                                                                                                                                                                     밁
                                                                                                                                                                                                               8
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bource
                                                                                                                                                                                                                                                                                                                                           3448
                                                                                                                                                                                                                                                                                                                                                                                          3388
                                                                                                                                                                                                                                                                                                                                                                                                                                          3328
                                               3808
                                                                                              3748
                                                                                                                                            3688
                                                                                                                                                                                            3628
                                                                                                                                                                                                                                            3568
                                                                                                                                                                                                                                                                                            3508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3148
 3868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3028
                                                                      707
                                                                                                                     647
                                                                                                                                                                    909
                                                                                                                                                                                                                                                                   536
                                                                                                                                                                                                                                                                                                                    476
                                                                                                                                                                                                                                                                                                                                                                   416
                                                                                                                                                                                                                                                                                                                                                                                                                  356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3088 CCGAGGTGAACGGCGCCGCTCGCTCGTCGTCGCAACGACGACACCCGCACCTGGCAGG
                       767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tch 22.3%;
al Similarity 60.5%;
899; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Other
Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N
                                                                                                                                                                                                                                                                                         AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG 535
                                                                                                                                                                                                                                                                                                                                                                                        GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGGCCGACTCCCCCGGCTACCACTCCCTGACCGCTCCGGCCACTGCCCGCACTCGCCGGCACTCCCCGGCACTGCCCGGCACTGCCCGGCACTCGCCCGGCACTCCCCGGCACTGCCCGGCACTCGCCCGGCACTGCCCGGCACTCGCCCGGCACTCCCGGCACTCCCCGGCACTCCCCGGCACTGCCCGGCACTCCCCGGCACTCCCCGGCACTCCCCGGCACTCCCCGGCACTCCCCGGCACTCCCCGGCACTCCCCGGCACTCCCCGGCACTCCCCGGCAACTGCCCCG
                ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCCTGCGGCACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGAACCCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCCGGCGAGGAGGACGTCTTCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAAACCGTCGGCCTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGAACGGGACTTCGGAATCAGCCGCCGGCCGACCAGCGGCCTGCCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGTCGAG-----GACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
GCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTGCGCGTCAAGGACGGTTCAGGCG 3927
                                                                                           cGGACGCCGCGTTCACCGCCCTGTTCGCCGACGCCCCGGCCCGGTTCTGGCTCGACAGCA
                                                                                                                                           CGTCCGCGCCGGTGGGGAGTÁCCGGCTGCÁTGTGCGCGAGGTCGCCTGCGTGCCCGÁCG
                                                                                                                                                                                                                                       CCGACCTGCGCCACCGCCCACACCGCCGACGGGCAGCTGATGGCCGTCGCCCACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGAACCCTTTCACGGCCGCACCAGCGACATCCGCCACGACGGCCAGGGCCTGTTCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCTCGCCGGCGCCGCCGTCGTCCACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGACACCGACCTGGGCCTCAGCCGCCGGGTGATCACCGAATGGGACCTGCCGCTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCTGGCGCGGGCGACTTCGACAACGTCGTCTCACCCGGCCCCGGCCACCCGCCA
                                                                                                                                                                                                                  publication AU 2891295
publication FR 2722210
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .4496
/organism="Streptomyces pristinaespiralis"
/mol type="unassigned DNA"
/db_xref="taxon:38300"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                            -GTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 459; DB 6
Pred. No. 5e-29;
0; Mismatches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            960209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   495;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6; Length 4496;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3207
                                                                                             3807
                                                                                                                                            3747
                                                                                                                                                                   646
                                                                                                                                                                                           3687
                                                                                                                                                                                                                                                                                                                                                                 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3087
                                                                                                                     706
                                                                                                                                                                                                                                                                                                                                                                                         3447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                     766
                                                                                                                                                                                                                                                                   560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
```

0 0 0 0 0 0	0 D Q D D D D D D D D D D D D D D D D D	D 90	8 8 8	\$ 4d \$0
1307 4390 1367 4450	1187 4285 1247 4330	1067 4165 1127 4225	947 4045 1007 4105	827 3928 887 3985
AGATETECETGACAACATGGTCACCGCGCÉGACCGAGGCGACGGCCCTGCCGCTCTACT 1366	TCGGGATCÇCCGAGGCGGCCGGCTTCGGCCCCTGGCCCGCGGCGCCACGACAAGG 1246	TGCTGGCCCTCGACCGCGGGCCACGACGACGACGGCCCCGCGCCTGGCTGCCGGAGACGG 1126	GCTACGAGCTGAAGGCGGAGACCACCGGCGACCCGCGCGCACCGACCCGCGCGCGACCGACCCGACCGACCGACCACC	CCACGACCCGGACGGGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGAC 886

Search completed: October 5, 2005, 05:30:46
Job time: 9505.53 secs

This Page Blank (uspto)

```
Minimum DB
Maximum DB
                                                                                                                                                                                                                                                    Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                               a
                                                           ი
    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
  2061
2061
1773.8
11772.9
365.4
361.8
361.8
361.8
361.8
361.8
361.8
361.8
361.8
361.8
361.8
361.8
366.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                          4:
6:
7:
8:
9:
10:
111:
13:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  October 4, 2005, 16:46:09; Search time 1245.11 Seconds (without alignments) 9798.799 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-1
2061
  Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4390206 seqs, 2959870667 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 atgcgcacgcttctgatcga.....ccgtggcggcgcgccgatga 2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N_Geneseq_16Dec04:*
1: geneseqn1980s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                          geneseqn2002bs:*
geneseqn2003as:*
geneseqn2003bs:*
geneseqn2003cs:*
                                                                                                                                                                                                                                                                                                                                                                                                                                         geneseqn2001as:*
geneseqn2001bs:*
geneseqn2002as:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       geneseqn1990s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             geneseqn2000s:*
                                                                                                                                                                                                                                                                                                                                                        geneseqn2003ds:*
geneseqn2004as:*
geneseqn2004bs:*
             349980
                                                                                                                                                                                                                                                    DB
 AAT59268
AAN36903
AAN36953
AAS59535
ACF64464
ACA42265
1 ABD14809
1 ABD15129
ADB15129
ADB16077
ADB12064
00
AAH66076
AAF72103
AAF72103
AAF72103
AAF73103
                                                                                                                                                                             AAF86409
AAL50180
ABZ69799
ABZ69798
AAT58553
                                                                                                                                                                                                                                                    Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       summaries
                                                                                                                                                                                                                                                                                      SUMMARIES
Aaf86409 4-amino-4
Aa150180 S venezue
Abz69799 plasmid p
Abz69799 plasmid p
Abz69799 plasmid p
Aat58258 Streptomy
Adn36903 X. albili
Adn36903 X. albili
Adn36893 X. albili
Adn36893 Y. albili
Adn36893 Y. albili
Adn36893 Y. albili
Abd14809 Propionib
Ac64464 Propionib
Ac642265 Prokaryot
Abd14809 Pseudomon
Abd15129 Pseudomon
Adb60707 Alloiococ
Adh52064 Alloiococ
Adh52064 Alloiococ
Adh52064 Alloiococ
Adh52064 C glutami
Aaf72103 Corynebac
Adf11982 Corynebac
Adf11982 Corynebac
Adf11982 Corynebac
Adf11982 Corynebac
Adf11988 C. glutami
Aah68527 C glutami
                                                                                                                                                                                                                                                 Description
```

FFFFXSX

agrochemicals.

Claim 11; Page 54-59; 83pp; Japanese

Υ.

7 7 7 7 7	X	223	Y P ?	었	X P S	48	X P	YPPP	S ×	¥ 2 2 1	X B	X II	X A	RESULT AAF864 ID A			ი (n													ი (n			
Tra. gro PF1 agr	WPI	Yanai Murak	(MEIJ	29-	29-	05-	WO2	CDS	Str	Met. 4-a	4-a	22-	AAF	JLT 1 36409 AAF86		45	44	4 4 2	41	40	ນ (ປ ດ (C	37	ω υ ω υ	34.	ω u u k	, ω (30 30	28	26	25	221	21			
P-2000 P-2000 P-1999 P-	WO200123542-		Streptomyces	Metabolite; 4-amino-4-d	nino-4-d bolite;	nino-4-da abolite:	nino-4-d	amino-4-deoxychorismic	JUN-2001	•••	· · ·	409; 409; N-20	o ··	~-	409		182.4	189.6 184 184 182.4		189.6	190.4	196.6	219 210.2 210.2 210.2 210.2 210.2 210.2 210.2 210.2 210.2 210.2 210.2				219	231.6 224.2 220.4 219			260 234.8				
t prodoenzen benzen h ease ls.	90517 82071	Okakura ';		•		•	-A1.			benz eoxyc	эохус	(fi		standard		•			•		•										11.4				
ucing e with at lo	-JPC -002 -AI KAI , Y		Location/Quali 12061 /*tag= a /product= "4-a	venezuelae.	deoxychorismic	horismic	horismic	(first entry)		d; DNA;		110000	110000	110000	2190	1323	349980	1506	1353	2160	2160	2160	110000	110000	1257 2019	2523	63164	816 42000							
nitr nitr		Yasuda	KAISHA LTD	00276314	6783			1/Qual a = "4-		chorismic mic acid	aci	Υ.		2061																	ω				
secondary metabolite modified with introgen-containing substituent a w cost, for application in pharmac), Watanabe M, Miyamoto	, Watanabe M,	j						lifiers -amino-4-deoxychorismic		ic acid; p-aminophenylpyruvic d synthase; enzyme; papA; ds.	d synthase, papA, coding	•		BP.	ALIGNMENTS	AAI99682_17	ADM27081_04	ADM27081 03	AAD50708	ACA31740	ABD01104	ABD02207	AD005540 ACA36033	AD005501	AD005494 AD005544	AAD50709	ACF65387_1 AAD50710	ACF67367_49	ACA45986 ACF71773	ACA29955	AAA63348	ABD15339 AAA63349	
Miyamoto K, Midoh N; modified with functional substituent at para-position, on in pharmaceuticals and		cacid synthase"		pyruvic acid; pA; ds.	ng sequence.					Continuation (18 o	Continuation (5 of	Ado05493 A. tumera Continuation (4 of	Aad50708 A. tumefa	Aca31740 Prokaryot	Abdullu4 Klebsieli	Abd02207 Pseudomon	Aca36033 Prokarvot	Ado05501 R. palust	Adous494 knodopseu Ado05544 Rhodopseu	Aad50709 Rhodopsud	Continuation (2 of Aad50710 Rhodopsud	Continuation (50 o	Aca45986 Prokaryot Acf71773 Photorhab	Aca29955 Prokaryot	60	Abd15339 Pseudomon Aaa63349 Streptomy									

```
Ş
                                                        В
                                                                                     Ś
                                                                                                                   В
                                                                                                                                           Ş
                                                                                                                                                                               뫄
                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CC The present invention relates to a transformant having been modified so CC as to produce a secondary metabolite. The secondary metabolite has a CC benzene ring skeleton free from substitution at the para-position by a CC nitrogen-containing functional group, thereby enabling the production of CC a secondary metabolite with a benzene ring skeleton substituted at the para-position by a nitrogen-containing group. The transformant organism CC of the present invention has been produced by transferring a gene CC participating in the biosynthesis pathway from chorismic acid into participating in the present sequence is the coding sequence for CC aminophenylpyruvic acid. The present sequence is the coding sequence CC tenzuelae paph participates in the biosynthesis pathway from chorismic acid into p-aminophenylpyruvic acid, and so the paph gene can be used to produce the transformant of the present invention. The transformant can CC be used to produce metabolites for application in pharmaceuticals, covered to the paph gene can be used to produce the transformant of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             e present invention relates to a transformant having been modified to produce a secondary metabolite. The secondary.
                                                           661
                                                                                         661
                                                                                                                      601
 721
                            721
                                                                                                                                                  601
                                                                                                                                                                                541
                                                                                                                                                                                                            541
                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2061;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      h 100.0%; Score 2061; DB 4; Similarity 100.0%; Pred. No. 1.7e-253; 61; Conservative 0; Mismatches 0;
               ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2061
                                                                            TCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAGAGGTACGC
                                                                                                                                                                               ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCACGGCGCCACGGCGCCACGGGGCCACGGGCCACGAC
                                                                                                                                                                                                    ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCGGCCACGGCCCACGGGCCACGGGGCCAC
                                                                                                                                                                                                                                                                                                                                                              CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCCGTCCTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCGAGGCCACCGGGCAACCCCCCCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
CGCGGCTGCCTGCCGGCGAGGGCACCACGTTCTGGCTGGACAGCAGCTCCGTCCTCGAA
                                                                                                                   TCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAGGTACGC
                                                                                                                                                                                                                                                                      CCGCTGTGGGGGGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                                                                                                                                                                                                                                       CTCGAACCCCTCGCCTGGAGCGACGACGACGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGGACTTCGGAATCAGCCGCCGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCGGCAGCCCGGACCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCGAGGCCACCGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                             CCGCTGI
                                                                                                                                                                                                                                                                                                    CTCGAACCCCTCGCCTGGAGCGACGACGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                         CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCCTCGGCCACCAGGGATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BP; 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   842 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ť;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0 U;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2061;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                          780
                                                        720
                                                                                     720
                                                                                                                   660
                                                                                                                                                 660
                                                                                                                                                                               600
                                                                                                                                                                                                            600
                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                      밁
                                                                                                Ś
                                                                                                                                                       Ş
                                                                                                                                                                                             밁
                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                               Ş
                                                                                                                                   밁
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                             1441
                                                                                                                                                                                                                                                                                                                                                                                                        1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1141
                                                                                                                                 1681
                                                                                                                                                             1681
                                                                                                                                                                                             1621
                                                                                                                                                                                                                          1621
                                                                                                                                                                                                                                                        1561
                                                                                                                                                                                                                                                                                                                  1501
                                                                                                                                                                                                                                                                                                                                                1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781
                                  ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGCGTCTACTCCGGGGCCCTC
                                                                                     GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                  GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCACC
                                                                                                                                                                                                              AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC
                                                                                                                                                                                                                                                        GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                        GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACCGACCTC
                                                                                                                                                                                                                                                                                                                                   GGGACCCGCCCCGGGGCGCACCGCGGAGGAGGAGGAGCGGCTCCGCGCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                          TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                             TCGCCCGAGCGGTTCCTCACGATCGGCGCCCGACGGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACATGGTCACCGCGCCGACGAGGCGACGGCCCTGCCGCGCTCTACTCCGCGCCTGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGGCGGCCGGCTTCGGCCCCTGGCCCGCGCGCGCCACGACAAGGACGCCTACCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCCTGGCCGTCCGCGCCCCGGCCGAGCCCGCCATGGTCTTCGGGATCCCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCCGGGGCCACGACGACGCGCCCGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCGGGGCCACGACGACGGCCCCGCGCCTGGCTGCGGGAGACCGGACCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGACCGCGCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGACCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGAGACCACCGGCGACCCCGCACCGGTCCCCGCACCCCGACGCCGCGTTCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGGAGACCACCGGCGACCCGCGCACCCGGCACCCCGACGCGCGCGTTCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACCGCGTCGCCGACGGCGTCGTCTCCGTCCGCGGCTCCGACCACCACGACCCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACCGCGTCGCCGACGGCGTCGTCCGTCCGCGGCTCCGACGGCACCACGACCCGGACG
                                                                                                                                                                                                                                                                                                                   GGGACCCGCCCCGGGGCGCACCGCGGAGGAGGACGAGCGGCTCCGCGCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCAGCCCCGTCCCGTACGGCGCCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGCGGCCGGCTTCGGCCCCTGGCCCGCGCGCGCCACGACAAGGACGCCTACCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GECCTEGECCETECECECECEGECEAAGCCCAACCCCCATEGTCTTCGGGATCCCCGAG
                                                                       CGCCCAAGAAGCGC
                                        1860
                                                                                                                                                             1740
                                                                                                                                                                                                                                                                                                                                                                          1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1020
            1860
                                                                      1800
                                                                                                    1800
                                                                                                                                1740
                                                                                                                                                                                           1680
                                                                                                                                                                                                                          1680
                                                                                                                                                                                                                                                      1620
                                                                                                                                                                                                                                                                                    1620
                                                                                                                                                                                                                                                                                                                  1560
                                                                                                                                                                                                                                                                                                                                              1560
                                                                                                                                                                                                                                                                                                                                                                                                        1500
                                                                                                                                                                                                                                                                                                                                                                                                                                       1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            840
```

```
RESULT 2
AAL50180
ID AAL5
XX AAL5
XX AAL5
XX AAL5
XX AAL5
XX Subs
XX Subs
XX Subs
XX Subs
XX Phen
XX Phen
XX Vete
XX Vete
XX Subs
XX Vete
XX Subs
XX Vete
XX V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
    Query
Best L
                                                                                                                              The present invention relates to transformants capable of producing PF1022 substance derivatives. These were obtained by transferring a gen participating in the biosynthesis pathway from chorismic acid to paminophenylpyruvic acid (biosynthesis gene) into a phenylalanine-requiring host derived from an organism producing the PF1022 substance. The transformants are producing PF1022 substance derivatives by fermentation, for use as pharmaceuticals or veterinary drugs. The presence is a substance PF1022 coding sequence from Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Substance PF1022; biosynthesis; transgenic; chorismic acid; anthelmintic; phenylalanine; p-aminophenylpyruvic acid; pharmaceutical; veterinary drug; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                         Novel biosynthesis gene-transferred transferred transf
                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                            Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200277244-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAL50180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAL50180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yanai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-MAR-2001; 2001JP-00082227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-JAN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           venezuelae
    Local Similarity
                         Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2003-018934/01.
DB; AAO19563.
                                                                                                                                                                                                                                                                                                                                            13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEIJI
                                                                      2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGTGGCGGGCGCCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGACGGCCAGGCGAGTTCGGCGTCGGCGGGGGGATCTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGCGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGTGGCGGGGCGCCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                        Page 74-79; 116pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sumida
                                                                                                                                                                                                                                                                                                                                                                                      anthelmintic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2002WO-JP002782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PF1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first
                                                                      BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEIKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag= a
/product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            z
                                                                      297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         substance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
  100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Watanabe
                                                                   A; 842 C;
                                                                                                                                                                                                                                                                                                                                                                                      activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2061
  .03;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "PF1022 substance"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뫈
Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2061
                                                                      654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Moriya
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #1.
                                                                   ဂ
                                                                                                                                                                                                                                                                                                                                                                                                         transformants for producing PF1022 on, as pharmaceuticals or veterinary
  2061; DB 8;
No. 1.7e-253;
                                                                      268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ή
                                                                 T; 0 U;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Murakami
                       Length 2061;
                                                                      0
                                                                      Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Н
                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2040
                            δ
                                                                                    밁
                                                                                                                  Ś
                                                                                                                                                               В
                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
  뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
  1021
                                       1021
                                                                                         961
                                                                                                                                                                               901
                                                                                                                                                                                                                         106
                                                                                                                                                                                                                                                                                                                841
                                                                                                                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                                                                       781
                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2061;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                             CGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                          TACCGCGTCGCCGACGGCGTCGTCCCGTCCGCCGCTCCGACGGCACCACCACCGGACG
                                                                                                                                                                                                                                                                                                                                                                                      TACCGCGTCGCCGACGGCGTCGTCTCCGTCCGCGGCTCCCGACGGCACCACCACCACCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCGCCTCGCGCTTCTCCTTCGGCGACGACCGCCCGCCCCGCCTCGCCGAGTACCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCGGCTGCCCGGCGAGGGCACCACGTTCTGGCTGGACAGCAGCTCCGTCCTCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCCCCGTACGAACTCCACGTGCGCCGCGCTCGACGTGCTGCCGGACGCCGAAGAGGGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCCCGTACGAACTCCACGTGCGCCGCCGTCGACGTGCCGGACGCCGAAGAGGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCGAACCCCTCGCCTGGAGCGACGACGACGGCGTCGTCATGGGGCCTGCGGCACCGCCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCCGTCCTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC
                                                                                                                                                                               CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                        CGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGCCGACGGGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCCTCGGCCACCAGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCGGACCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCGAGGCCACCGGGCAACCCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                          1080
                                                                                                                                   1020
  1080
                                                                                         1020
                                                                                                                                                                               960
                                                                                                                                                                                                                         960
                                                                                                                                                                                                                                                                      900
                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                       840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
멼
                         S
                                                           망
                                                                                  Ś
                                                                                                                         밁
                                                                                                                                                   Ş
                                                                                                                                                                                     밁
                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                     1861
                                                               1981
                                                                                          1981
                                                                                                                          1921
                                                                                                                                                       1921
                                                                                                                                                                                                                   1861
                                                                                                                                                                                                                                                    1801
                                                                                                                                                                                                                                                                                                               1741
                                                                                                                                                                                                                                                                                                                                              1741
                                                                                                                                                                                                                                                                                                                                                                             1681
                                                                                                                                                                                                                                                                                                                                                                                                        1681
                                                                                                                                                                                                                                                                                                                                                                                                                                         1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1081
                                                                                                                                                                                                                                                                                                                                                                                             GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCCGAACTGTCGGTGCTGAGCGCC 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGCGGCCGGCTTCGGCCCCTGGCCCGCGCGCGCCCACAAGGACGCCTACCTCAAG
                      GCCGTGGCGGGCGCCCGATGA 2061
                                                                                                                                          GCCGACGGCCAGGCGGAGTTCGGCGTCGCGGGGGGGGCGATCGTGTCCCTCTCCCGACCAGGAG
                                                                                                                                                                                                      GGATGGTTCGCCCTCAGCGGCGCCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                  ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                 GCCGCCTGCGTACGCGCCGCCCTTCCCCCGGCGGCTCCATGACCGGCGCCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACAGCGTCTGCGCGATCGGCTCCGCTCCACGTGCCCCCGGCTCTTCGAGGTGGAGACCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGACCCGCCCCGGGGCCGCACCGCGGAGGAGGACGAGCGGCTCCGCGCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCCCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACATGGTCACCGCGCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTCTGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCTGGCCGTCCGCGCCCCGGCCGAGCCCGCCATGGTCTTCGGGATCCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGGGGCCACGACGACGCCCCGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGGGGCCACGACGACGACGCCCGCCGCCGCCTGCCGGGAGACCGCCGAGACCCTCACC
                                                                                          GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                     GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                              GCCGCCTGCGTACGCGCCCTTCCCCGGCGCGCTCCATGACCGGCGCGCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                             GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                         AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCGCTGCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGCGGCCTTCGGCCCCGCGCGCGCGCACAAGGACGACGACTACCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCCTGGCCGTCCGCGCCCGGCCGAGCCGACCCCCGCCATGGTCTTCGGGATCCCCGAG
GCCGTGGCGGGCGCCCGATGA 2061
                                                                                                                                                                                                                                                  ACCATGGAGATCATCGACCGCCTGGAGGAAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGACCCGCCCCGGGGCACCGCGGAGGAGGACGAGCGGCTCCGCGCCGACCTGGCC
                                                                                                                                                       1980
                                                                                                                                                                                                                   1920
                                                                                                                                                                                                                                                  1860
                                                                                                                                                                                                                                                                                 1860
                                                                                                                                                                                                                                                                                                              1800
                                                                                                                                                                                                                                                                                                                                           1800
                                                                                                                                                                                                                                                                                                                                                                           1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1140
                                                                                                                         1980
                                                                                                                                                                                                                                                                                                                                                                                                                                         1680
```

```
DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS; orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase; dibysynthesis; p-aminophenylalanine; pAF; chorismate.
                                                                                                                                                                                               19-APR-2001; 2001US-0285030P. 06-FEB-2002; 2002US-0355514P.
                                                                                                                                                                                                                  19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                           WO200285923-A2
                                                                                                                                                                                                                                                       Synthetic
                                                                                                                                                                                                                                                                                                  Plasmid papABC
                                                                                                                                                                                                                                                                                                               08-APR-2003
                                                                                                                                                                                                                                                                                                                           ABZ69799;
                                                                                                                                                                                   (SCRI)
                                                                                                                                                                EĽ,
                                                                                                                                                                                   SCRIPPS RES INST
                                                                                                                                                                 Wang I
Mehl
                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                           J L,
1 RA,
                                                                                                                                                                Anderson JC,
Pastrnak M,
                                                                                                                                                                 Chin JWK, L. Santoro SW,
                                                                                                                                                                       Liu
                                                                                                                                                                 Zhang
                                                                                                                                                                        DR,
                                                                                                                                                                 N
                                                                                                                                                                       Magliery
                                                                                                                                                                                                                                                                          plasmid;
```

Composition useful for producing protein comprising unnatural amino has translation system comprising orthogonal tRNA and orthogonal aminoacyl tRNA synthetase. acid,

2003-120430/11.

Example 4; Page 127-128; 188pp; English.

The invention relates to a novel composition comprising a translation comprising an orthogonal tRNA (O-KRNA) and an orthogonal aminoacyl CC tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-CC -tRNA with at least one unnatural amino acid in the translation system cand the O-KRNA recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the Aspl2TAG mutant of mouse chloramphenicol acetyltransferase (CAT), the Tyr163TAG mutant of mouse CC dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse CC dihydrofolate reductase comprising CHOOH Histeng. The unnatural amino acid is provided exogenously. The translation system is a cell and the cumnatural amino acid is biosynthesised by the cell. The present sequence crepresents a plasmid containing the individual genes papaBC that encode the enzymes used to carry out the conversion of chorismate to the unnatural amino acid p-aminophenylalanine (pAF)

Sequence 3305 BP; 445 A; 1327 C; 1121 G; 412 T; 0 U; 0 Other;

86.1%;

Length

```
Ś
                                                                                                                                                 8
밁
                   Ş
                                                         밁
                                                                                                                         밁
                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                  Query Match 86.3
Best Local Similarity 92.8
Matches 1913; Conservative
                             181
                                                                                           121
                                                                                                                           61
                                                                                                                                                        61
                  CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCCGTCCTCGGCGTC
                                                              CCCCTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCGGGAA
                                                                                CCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCCGGGCCCCCGGCAGCCCCGACCGGGAA
                                                                                                                           GGCGAGGCCACCGGGCAGCCCCCCG----TCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                   GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGTCGCCAACGACGCCGACTGGTCGCCGGCTG
                                                                                                                                                                                      ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC
 CGGGACTTCGGGATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCCGTCCTCGGCGTC
                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                 Score 1773.8; DB 8; Pred. No. 4.5e-217; 0; Mismatches 97;
                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                      51;
                                                                                                                                                                                                                                                    Gaps
                                                              177
                                                                                           180
                                                                                                                           117
                                                                                                                                                                                       60
                                                                                                                                                                                                                      60
 237
                                                                                                                                                        120
```

RESULT 3 ABZ69799 ID ABZ6

ABZ69799

standard;

DNA;

3305 ВP

유

밁 ð

```
1117
                                                                                     1141
                                                                                                         1057
                                                                                                                          1081
                                                                                                                                                            1021
                                                                                                                                         997
                                                                                                                                                                              937
                                                                                                                                                                                                                877
                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        397
                                                                                                                                                                                              961
                                                                                                                                                                                                                                  901
                                                                                                                                                                                                                                                    817
                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                       757
                                                                                                                                                                                                                                                                                                      781
                                                                                                                                                                                                                                                                                                                         697
                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                            637
                                                                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                               577
                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                  517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                            GGCCTGGCCGTCCGCGCCCGGCCGAGCCGAGCCCCCGCCATGGTCTTCGGGATCCCCCGAG
                                                                                                                CGCCGGGGCCACGACGACGGCGCCCCGCGCCTGGCTGGCGGAGACGCGAGACCCTCACC
                                                                                                                                         GCCGACCGCCATCGCCCTCGACCACGAGGAAGGCTGCTGCTACCTGCTGGCCCTCGAC
                                                                                                                                                                                                                GGCGCCTCGCGCTTCCCTTCCTCCGCGACGACGACGGCCGCGCCGCCGAGTACCTCACC
                                                                                                                                                                                                                                                                                                                                                                                            CCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                           GCGGCGGCCTCGGCCCCCTGGCCCGCGCGCGCCACGACAAGGACGCCTACCTCAAG
                                                                                                                                                                                                                                                                                                                                                                    CGCATCGACGAGTGCCTCAAGGAGTCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                     GCCTGGCCGTCCGCGTCCGGCCGAGGCCGACCCCCGCCATGGTCTTCGGGGTCCCCGAG
                                                                                                        CGCCGGGGCCACGACGACGCGCCCGCGCCTGCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                                                                                                                                                        GGCGCCTCGCCGTTCTCCTTCGGCGACGACCGCGCCCGCTCGCCGAGTACCTCACC
                                                                                                                                                                                                                                                                                                                                                            ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGCACGTCGCGACGCGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCGGGCACGGCGCCACGGGGCCACGGGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGCGGAA
                                                                                                                                                           1080
1269
                                                   1260
                                                                   1176
                                                                                     1200
                                                                                                                         1140
                                                                                                                                          1056
                                                                                                                                                                                             1020
                                  1228
                                                                                                                                                                             996
                                                                                                                                                                                                                936
                                                                                                                                                                                                                                  960
                                                                                                                                                                                                                                                    876
                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                     816
                                                                                                                                                                                                                                                                                                       840
                                                                                                                                                                                                                                                                                                                       756
                                                                                                                                                                                                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                                                            696
                                                                                                                                                                                                                                                                                                                                                                                             636
                                                                                                                                                                                                                                                                                                                                                                                                               660
                                                                                                                                                                                                                                                                                                                                                                                                                                  576
                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                276
```

밁 S 밁 र् 8 8 8 8

음 성 문 Ś В Ş 문 δ

```
유 성 유 성
                                                               밁
                                                                                  Ş
                                                                                                  밁
                                                                                                                     Ś
                                                                                                                                       밁
                                                                                                                                                        δ
                                                                                                                                                                              음 성
                                                                                                                                                                                                            유양
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                    중 음 중
                                                                                                                                                                                                                                                                                                                                                       유 성 유
                                                                                                                                                                                                                                                                                                                                                                                                           δ.
                                                                                                                                                                                                                                                                                                                                                                                                                                  문문
                                   1930
                                                                                       1921
                                                                                                         1810
                                                                      1870
1990
                                                                                                                          1861
                                                                                                                                                             1801
                                                                                                                                                                                1690
                                                                                                                                                                                               1741
                                                                                                                                                                                                                  1630
                                                                                                                                                                                                                                                     1570
                                                                                                                                                                                                                                                                                        1510
                                                                                                                                                                                                                                                                                                                          1450
                                                                                                                                                                                                                                                                                                                                                             1390
                                                                                                                                                                                                                                                                                                                                                                              1441
                                                                                                                                                                                                                                                                                                                                                                                               1330
GCCGTGGCGGGCGCCCGATGA
                                   GCCGACGGCCAGGCGAGTTCGGCGTCGCGGGGGGGGCGATCGTGTCCCTCTCCCGACCAGGAG
                                                                                                                    GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                          ACCATGGAGATCATCGACCGCCTGGAGGAAĠGCCCCCGGGGCGTCTACTCCGGGGGCGTC
                                                                                                                                                                             GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGCGCTCCATGACCGGCGCGCCCAAGAAGCGC
                                                                                                                                                                                                                          GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCACC
                                                                                                                                                                                                                                                             AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC
                                                                                                                                                                                                                                                                                       GCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                    GGGACCCGCCCCGGGGGGGGACCGGGGAGGAGGACGAGCGGCTCCGCGGCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                      TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGCGGCGGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                              GCCGACGGCCGGGCCGAGTTCGGCGTCGGCGGGGGGGTCGTCTCTCCGACCAGGAG
                                                                                                         GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                  GCGCCCGTGCACCAGCTGGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                  AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGGAGACCTC
                                                                                                                                                                                                                                                                                                                         GGGACCCGCCCCGGGGCACCGGCGGAGGAGGACGAGCGGCTCCGCGCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                             TCGCCCGAGCGGTTCCTCACGATCGGCGCGCGACGGCGTCGAGTCCAAGCCCATCAAG
2010
                 2061
                                                                                       1980
                                                                                                                                           1809
                                                                                                                                                            1860
                                                                                                                                                                               1749
                                                                                                                                                                                               1800
                                                                                                                                                                                                                                                                                                         1620
                                    1989
                                                     2040
                                                                     1929
                                                                                                         1869
                                                                                                                          1920
                                                                                                                                                                                                                  1689
                                                                                                                                                                                                                                                     1629
                                                                                                                                                                                                                                                                                                                                                            1449
                                                                                                                                                                                                                                                                                                                                                                                                                 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                    1329
                                                                                                                                                                                                                                                                                        1569
                                                                                                                                                                                                                                                                                                                         1509
                                                                                                                                                                                                                                                                                                                                                                              1500
                                                                                                                                                                                                                                                                                                                                                                                               1389
```

RESULT 4
ABZ69798
ID ABZ6
XX ABZ6
XX ABZ6
XX ABZ6
XX Plas
DT 08-A
DT Plas
XX Plas
CX Plas
XX DHFR
KW OPTH
KW OFTH
KW O Plasmid 08-APR-2003 ABZ69798 ABZ69798 standard; plasc-papabc. (first DNA; entry) 12391 ВP

중 음

5 В 5 음 성

유상유

문 Ş 밁 8 밁 ફ

> DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS; orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyl transferase; dihydrofolate reductase; diosynthesis; p-aminophenylalanine; pAF. Synthetic plasmid;

31-OCT-2002

WO200285923-A2

```
Ś
                               밁
                                                         Ś
                                                                                        밁
                                                                                                                  S
                                                                                                                                                   밁
                                                                                                                                                                      Ş
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 1912; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-tRNA with at least one unnatural amino acid in the translation system and the O-tRNA recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the Aspl2TAG mutant of chloramphenicol acetyltransferase (CAT), the Ty163TAG mutant of mouse dihydrofolate reductase (DHFR), or a Ty163TAG mutant of mouse dihydrofolate reductase comprising CHOOH His6tag. The unnatural amino acid is biosynthesised by the cell. The present sequence represents a plasmid for use in the biosynthesis of p-aminophenylalanine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 12391 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aminoacyl tRNA synthetase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Composition useful for producing plass translation system comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2003-120430/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (SCRI ) SCRIPPS RES INST
                                 420
                                                                                          360
                                                                                                                     361
                                                                                                                                                   300
                                                                                                                                                                            301
                                                                                                                                                                                                            261
                                                                                                                                                                                                                                                                    201
                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                             141
    481
                                                            421
                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                   84
                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                            24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EĽ,
                                                                                                                                                                                                                                                                                      CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                     GGCGAGGCCACCGGGCAACCCCCCCGTCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OATA
   CCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                         CCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCCACCGACCTCCCCCGACGAG
                                                                                                                                                                CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCCGGGGCCTC
                                                                                                                                                                                                                          TGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAA
                                                                                                                                                                                                                                                                                                                                            CCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                    GGCGAGGCCACCGGGCAGCCCCCCG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCCACAACCTGTTTCCAGTACATC
                                                    CTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                            TGCCTCGGCCACCAGGGCATCGCCCAGCTCT
                                                                                                                                                                                                                                                                  CGGGACTTCGGGATCAGCCGGCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC
                                                                                                                                                                                                                                                                                                                           CCCCTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCAGAACCTGTTCCAGTACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Page 124-127; 188pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wang L, ?
Mehl RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86.0%;
ilarity 92.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2001US-0285030P.
2002US-0355514P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Anderson JC,
Pastrnak M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 1772.2; DB 8;
Pred. No. 5.5e-217;
0; Mismatches 98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; 3346 G; 2627 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chin JWK,
Santoro
                                                                                                                                                                                                                                                                                                                                                                                   TCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    comprising unnatural amino onal tRNA and orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ws,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0 U;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Magliery
Z;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12391;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Į,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acid
                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                      180
                                                          480
                                                                                        419
                                                                                                                   420
                                                                                                                                                359
                                                                                                                                                                            360
                                                                                                                                                                                                          299
                                                                                                                                                                                                                                                                  260
                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                           200
                                                                                                                                                                                                                                                                                                                                                                                   140
                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                          83
                                                                     Ś
                                                                                                    밁
                                                                                                                           5
                                                                                                                                                            밁
                                                                                                                                                                                     8
                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                1561
                                                                                                                                                                                                                                                                                                                                         1200
                                                                                                                                                                                                                                                                                                                                                                    1201
                                                                                                                                                                                                                                                                                                                                                                                                1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                        GGGACCCGCCCCGGGGCGCACCGCGAGGAGGACGACCGGCTCCGCCCGACCTGGCC
                                                                                                                      TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                              ATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCCGAACTGTCGGTGCTGAGCGCC
                                                                                                                                                                                                                                          AACATGGTCACCGCGCCGACGAGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCC
                                                                                                                                                                                                                                                                                                   CGCATCGACGAGTGCCTCAAGGAGATCCGCCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                              GCGGCGGCCTCCGGCCCCCTGGCCCCCGCGCGCGCACGACAAGGACGCCTACCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                           GECCTEGCCETCCGCGCCCCGGCCGAGCCGACCCCGCCATGGTCTTCGGGATCCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGGGGCCACGACGACGCCCCCGCGCCTGCCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGACCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGAGACCACCGGCGACCCCGCGCACCCGGTCCCCCGCACCCCCGACGCCCGCGTTCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGGCGACCCTCTTCAGCTACCTGGAGGAGCAGCTCGAACCGCCGGCGGGTCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TACCGCGTCGCCGACGGCGTCGTCCCGTCCGGCGGCTCCGACGGCACCACCACCACCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCGCCTCGCGCTTCTCCTTCGCGGCGACGACGGCCGCCGCTCGCCGAGTACCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAGGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGCCACGGCGCCCACGGGGCCGAC
                                             GGGACCCGCCCCGGGGCGCACCGGCGGAGGAGGACGAGCGGCTCCGCGCCGACCTGGCC
                                                                                                                                                               ATCAGCCCCGTCCCGTCTGGCGCCCTGCTCGAGTTCCCCGAGCTGTCGGTGCTCAGCGCC
                                                                                                                                                                                                                          AACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                  GGCCTGGCCGTCCGGCCGAGGCCGACCCCCGCCATGGTCTTCGGGGTCCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCGGGGCCACGACGACGCCCCCGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGGAGACCACCGGCGACCCCGCAGTACCGGCCCCGCACCCCGACGCCGCGTTCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGACCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TACCGCGTCGCCGACGGCGTCGTCTCCGTCCGCGCCTCCGACGGCACCACGACCCGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCGCCTCGCCGTTCCTTCCTCCGGCGACGACCGCGGCCCGCTCGCCGAGTACCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCTGATGGGCGTCCAGTTCCCACCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                      1472
                                                                                                                                                               1412
                                                                                                                                                                                           1440
                                                                                                                                                                                                                        1352
                                                                                                                                                                                                                                                                                1292
                                                                                                                                                                                                                                                                                                                                         1251
                                                                                                                                                                                                                                                                                                                                                                    1260
                                                                                                                                                                                                                                                                                                                                                                                                1199
                                                                                                                                                                                                                                                                                                                                                                                                                           1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1020
                  1620
                                             1532
                                                                         1560
                                                                                                                                  1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            539
```

<u>ი</u>

```
ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                            Streptogramin B; antibiotic; biosynthesis; pristinamycin; virginiamycin; pipecolic acid; cyclodeamination; papA; snbA; snbF; pipA; 3-hydroxypicolinic acid; hydroxylation; ds.
                                                                                                                                                                                                                                                                                                                                                                  Streptomyces pristinaespiralis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptomyces pristinaespiralis snbA and papA intergenic region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAT58553
                  25-JAN-1996
                                                 WO9601901-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGCGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGCCTGCGTACGCGCCGCCTTCCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGTGGCGGGCGCCCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AACAGCGTCTGCGCATCGGCTCCCCTCCACGTGCCCCGGCTCTTCGAGGTGGGAGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGGAGTTCAGGCAGACCGTGGTCAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGACGGCCGGGCCGAGTTCGGCGTCGGCGGGCGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGCGTCTTACCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGCCCGTGCACCAGCTGTCCACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          receeececaceatea
                                                                                                                                 / -- cag = c
/product = "snbf"
3018. .4496
/***
                                                                                                                                                                                                                                                    /note= "N-terminal coding open reading frame"
                                                                                                                                                                                                                                                                                                                 complement (1. .332)
                                                                                                                                                                                                                                                                                     product= "SnbA"
                                                                                                                                                                                                                                                                                                                                   ocation/Qualifiers
                                                                                                                                                                                       product= "PipA"
800. .2996
                                                                                           note= "N-terminal coding
                                                                                                            product= "PapA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA; 4496
                                                                           reading frame"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2061
                                                                                           region
                                                                                                                                                                                                                                                                    region
                                                                                                                                                                                                                                                                    only,
                                                                                           only,
                                                                                                                                                                                                                                                                      1.e.
                                                                                             i.e.
                                                                                           മ
                                                                                                                                                                                                                                                                      ø
                                                                                           partial
                                                                                                                                                                                                                                                                    partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1892
                                            Ś
                                                                             밁
                                                                                                         S
                                                                                                                                         밁
                                                                                                                                                                     S
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                             S
                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The paph gene of S.pristinaespiralis is involved in the biosynthesis of 4 CC -dimethylamino-L-phenylalanine (DMPAPA), a precursor for pristinamycin CC IA. Upstream of the paph gene, on the complementary strand, is the snbh CC gene coding for 3-hydroxypicolinic acid-AMP ligase. The region between these two genes was sequenced and two open reading frames were identified. The first (piph) decodes to an amino acid sequence with homology to ornithine cyclodeaminase from Agrobacterium tumefaciens. The Piph gene product is likely to catalyse the cyclo-deamination of lysine, leading to production of pipecolic acid. Mutations in the piph gene were shown to affect pipecolic acid synthesis but not the synthesis of 3-cc hydroxypicolinic acid. The second open reading frame (snbf) could be decoded to give a product with homology to hydroxylases of the cytochrome P450 type. Disruption of the piph and snbf genes can be used to produce strains of S.pristinaespiralis which are unable to produce the antiblotic pristinaespiralis which are unable to produce the antiblotic pristinaespiralis which are unable to produce the antiblotic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 899;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 4496 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            biosynthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New streptogramin B derivs. useful as antibiotics - produced by new mutants of Streptomyces having altered genes for streptogramin B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1996-097631/10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Barriere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Blanc V,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 1; Page 107-111; 146pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     04-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              3028
                3448
                                                                                                                                         3328
                                                                                                                                                                                                        3268
                                                                                                                                                                                                                                                                    3208
                                                                                                                                                                                                                                                                                                                                   3148
                                               416
                                                                                                                                                                                                                                     236
                                                                                                                                                                                                                                                                                                                                                                                                                               62 GCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                CCGACCTGCGCGCCACACCCCACACCCGCCGACGGCAGCTGATGGCCGTCGCCCACCGCC
                                            ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGTCGTCATGGGCCTGCGGCACCGCG
                                                                                               GCCTCCCCTCGCCGTTCACCGCCGTGCCGTTACCACTCCCTGGCCGCCACCGACCTCCCCG
                                                                                                                                           CCGAACCCTTTCACGGCCGCACCAGCGACATCCGCCACGACGGGCAGGGCCTGTTCGCGA
                                                                                                                                                                CGGAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGACGACGTCTTCCGGG
                                                                                                                                                                                                        eedrereccredeccaccadecccrereccrecredecedececcederecredecac
                                                                                                                                                                                                                                     GCGTCTGCCTCGGCCACCAGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCC
                                                                                                                                                                                                                                                                   CCGACACCGACCTGGGCCTCAGCCGCCGGGTGATCACCGAATGGGACCTGCCGCTGCTCG
                                                                                                                                                                                                                                                                                                  GGGAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCG
                                                                                                                                                                                                                                                                                                                                                               ccerceae-----eactriceacecearcerecrececeeeccceecaeccceaec
                                                                                                                                                                                                                                                                                                                                                                                                 CCGAGGTGAACGGCGCCGCTCCGCTCGTCGCAACGACGACACCCCGCACCTGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
                                                                              ACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCCG
                                                                                                                                                                                                                                                                                                                                   CCCTGGCGCGGGCGACTTCGACAACGTCGTCGTCTCACCCGGCCCCGGCCACCCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thibaut D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Debussche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POULENC RORER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94FR-00008478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95WO-FR000889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       659 A; 1980 C; 1321 G; 536 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAW11585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bamas-Jacques
ne L, Famechon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 459; DB 2;
Pred. No. 3.6e-50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'nχ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Blanche F, Crouzet J;
Paris J, Dutruc-Rosset
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            495;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 4496;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
```

93;

Gaps

ū

3507

3447

475

3387

355

3327 295 3267 3207 175 3147 121 3087 61

235

```
4390
                                                                                                                                                                                                                                     1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGCGTTCCTCTTCGCCGACCGCCCTCGACCACCAGGAAGGCTGCTGCTACC
                                                                                                                                                                                                                                                                                                                                                                                               ACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGAGACCCTCACCGGCCTGGCCGTCCGCGCCCGGCCGAGCCGACCCCCGCCATGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCTGGCACTGAGCAGCACCGGACGGCCCACCGCACCGGCCGCCGAACGCTGGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTACGAGACCAAGGCCGACAGCGGCGACGGCCACCGCGGCGAACTGCCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ececcineceacionica de la constante de la const
                                                                           CCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCCTGCTCGAG 1413
                                                                                                                                                                                                                                     AGATCTGCCTGACCAACATGGTCACCGCGCCGACCGAGGGGACGGCCCTGCCGCTCTACT
                                                                                                                                                                                                                                                                                                                    CCCGCTACCGGGAACTGGTCGAGGAATGCCGCCGGCCTGATCACCGACGGCGAGACCTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGACCAACTGCCCGCCCTGGACGTCCACTAC-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCGGGATCCCCGAGGCGGCCGGCCTTCGGCCCCCTGGCCCGCGCGCCCACGACAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCTGGCCCTCGACCGCCGGGGCCACGACGACGCCCCGCGCCTGGCTGCGGGAGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     естасеаествааесееааесеаесеесеесеесеесеесесесестсесеесаесеесее
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGCCCTGCCCGCCACCGGCCTGCCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGTCCCCGTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCACGACCCGGACGCGCCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTGCGCGTCAAGGACGGTTCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGACGCCGCGTTCACCGCCCTGTTCGCCGACGCCCCGGCCCCGGTTCTGGCTCGACAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTCCGCGCGGGGGGGGGAGTACCGGCTGCATGTGCGCGAGGTCGCCTGCGTGCCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG
                                                                                                                                                 AGGTGTGCCTGACGAACATGCTCCGGGTGCCCGGCCGGATCGACCCGCTCACCGCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGATCATGGCCAACTTCCGCGACCT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCCTCGCCCACCACCGGGCACGGCCACGGGGCCGACTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -GTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ................
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCACAGCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3807
                                                                                                                                                      4449
                                                                                                                                                                                                                                     1366
                                                                                                                                                                                                                                                                                                                                                                                               1306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3567
                                                                                                                                                                                                                                                                                                                4389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           535
```

RESULT 6
AAT59268
ID AAT5
XX

AAT59268

standard;

CDNA;

2888

ВP

Best Local Similarity

17.7%; 74.2%;

Score 365.4; DB 2 Pred. No. 3.1e-38;

Query Match

Sequence

2888

B₽;

390 A; 1319 C; 897 G; 282

T; 0 2

U; 0 Other;

Length 2888;

맑 Š 밁 Ş

В Ś 밁 Ş

뭐 Ś 밁 Ş

멍 Ś 밁 Ś 밁 Ş 밁 Ś 밁 8 멍 Ś 밁 Š 밁 Ś 뭥 Ş 밁 Ş 뭕 á

```
The paph and paph genes of S.pristinaespiralis are involved in the biosynthesis of 4-dimethylamino-L-phenylalanine (DMPAPA), a precursor for pristinamycin IA. The region between these two genes was sequenced and two open reading frames were identified. The first (papc) was on the complementary strand and decodes to an amino acid sequence with homology to the region of E.coli TyrA which has been implicated in aromatisation reactions. The PapC gene product is likely to be involved in a similar aromatisation of 4-deoxy 4-amino prephenate to give 4-amino prephenate (paps) could be decoded to give a product with homology to the region of (paps) could be decoded to give a product with homology to the region of deoxy 4-aminoprephenate mutase activity. The second open reading frame (paps) could be decoded to give a product with homology to the region of deoxy 4-aminoprephenate. Disruption of 4-deoxy 4-amino chorismate to 4-deoxy 4-aminoprephenate. Disruption of the paps and papC genes can be used to produce strains of S.pristinaespiralis which are unable to produce the antibiotic pristinaespiralis which are unable to produce new, modified forms of it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptogramin B; antibiotic; biosynthesis; pristinamycin; virginiamy DMPAPA precursor; 4-dimethylamino-L-phenylalanine; papA; papB; papB; papC; isomerisation; aromatisation; N-methyltransferase; ds.
                                                                                                                                                                                                                                                                                                                   New streptogramin B derivs. useful as antibiotics - produced by mutants of Streptomyces having altered genes for streptogramin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                         Example 1; Page 102-104; 146pp; French.
                                                                                                                                                                                                                                                                                                       biosynthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                      Blanc V,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                08-JUL-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9601901-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                    (RHON )
                                                                                                                                                                                                                                                                                                                                                                            1996-097631/10
                                                                                                                                                                                                                                                                                                                                                              AAW11582,
                                                                                                                                                                                                                                                                                                                                                                                                                                                    RHONE
                                                                                                                                                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                      Thibaut D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pristinaespiralis papA and papM intergenic region
                                                                                                                                                                                                                                                                                                                                                                                                          Debussche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pristinaespiralis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                    POULENC RORER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94FR-00008478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95WO-FR000889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              open
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note= "C-terminal
open reading frame"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (949. .1836)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product= "PapM"
/note= "N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag= c
/product= "PapB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product= "PapC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product= "PapA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     259. .2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               873. .2262
                                                                                                                                                                                                                                                                                                                                                                AAW11583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry)
                                                                                                                                                                                                                                                                                                                                                                                                        Bamas-Jacques
ne L, Famechon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              reading frame"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>α</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      coding
                                                                                                                                                                                                                                                                                                                                                                                                        Þζ
                                                                                                                                                                                                                                                                                                                                                                                                       Blanche F, Crouzet J;
Paris J, Dutruc-Rosset
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      only,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           only,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              і.
е.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   virginiamycin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       þ
                                                                                                                                                                                                                                                                                                                                γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      partial
                                                                                                                                                                                                                                                                                                                      œ
```

```
RESULT 7
ADN36903
ID ADN3
XX ADN3
AC ADN3
XX ADN3
XX ALbi
KW Albi
KW ALbi
KW Gene
XX YANT
ON WALE
KW Gene
XX WO2(
XX WO2(
XX I)-(
XX I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 श
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                         Albicidin family; antibiotic production; XALB1; albicidin biosynthetic gene cluste gene; ds.
    (UYFL ) UNIV FLORIDA.
(CIRA-) CIRAD CENT COOP INT EN
                                                                   18-OCT-2002; 2002US-0419463P
                                                                                                            17-OCT-2003;
                                                                                                                                                                                                     WO2004035760-A2
                                                                                                                                                                                                                                                Xanthomonas
                                                                                                                                                                                                                                                                                                                                                                            X. albilineans XALB1
                                                                                                                                                                                                                                                                                                                                                                                                                          15-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADN36903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     462;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ľ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCGCGCCATGGTCACCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATCCGGGGACGGCTGCGGCCCGGCACCAGCACCAGCCGCCTGCGTACGCGCGCCGCCTTCCCC 1767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACC 1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGACGGCGCGTCGAAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGGCGGCACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCGGGGCGATCGTGTCCCTCCGACCAGGAGGAGGAGGAGTTCACCGAGACCGTGGTAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCTCAGCATCGTCATCCGCACCATCGTCGCCACCGAGGAGGCCGCCACCATCGGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAAGGCCCCCGGGGCCTCTACTCCGGGGCGCCTCGGATGGTTCGCCCTCAGCGGCGCCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCCGCGGCCGCCTGGCCGACGTCTCCCGCCCCCCGCGCGTACGGCCGCCTTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCAGTTCCCCGGGGCCACCGTGCTCAGCTCCTCACCCGAACGGTTCCTGCGCATCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCAGACCACCCTCGCCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCGGCGCCGTCGCCCTGTCCGACCCCCGACGACGACGTCCGCGAAATGCTCCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGGGTCGATGACCGGCGCGCCCAAGGTCCGCACCATGCAGTTCATCGACCGGCTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACGTACCGGGCCTGTTCGAGGTGGAGACCTACGCCACCGTCCACCAGCTCGTCAGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGATGATCGTCGACCTGGTCCGCAACGACCTCGGCCAGGTCTGCGACATCGGCTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGCGATCGGCTCCGTC 1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCAGGACGCCGCCGTCAAGGCCTCCCTCGCCGCGGCCGAGAAGGAACCGCAGCGAGAAC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGGAGGACGAGCGGCTCCGCCCGACCTGGCCGGCCGGGAGAAGGACCGGGCCGAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      albilineans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                               2003WO-US033142
                                                                                                                                                                                                                                                                                                                                                                                                                       (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                                                                                                                          gene cluster DNA encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽₽
                                                                                                                                                                                                                                                                                                      production; biosynthetic gene cluster;
gene cluster 1; phytotoxic damage; AlbXVII;
    RECH AGRONOMIQUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                161;
                                                                                                                                                                                                                                                                                                                                                                            protein AlbXVII.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                        В
                                                                             Ş
                                                                                                                                 밁
                                                                                                                                                                δ
                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 1057; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention relates to a novel Albicidin family of antibiotics produced by the expression of biosynthetic gene clusters from Xanthomonas albilineans designated as XALB1, XALB2 and XALB3 (albicidin biosynthetic gene clusters 1, 2 and 3). The invention discloses the polynucleotide sequences of these gene clusters, and the proteins encoded by the open reading frames (ORFs) within the gene clusters. Also disclosed are methods for producing an antibiotic and protecting a plant against damage from albicidin and against phytotoxic damage. The present sequence represents an ORF from the Xanthomonas albilineans XALB1 gene cluster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New transformed host cell, useful for polyketide antibiotics for protecting or damage against albicidin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 2151 BP; 418 A; 607 C; 665 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 8; SEQ ID NO 11; 193pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Royer M,
                                                                                                                                                                                                                       482
                                                                                                                                                                                                                                                                                                           422
                                                                                                                                                                                                                                                                                                                                                   410
                                                                                                                                                                                                                                                                                                                                                                                                                                          356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADN36934
TCCCGACGAGCTGGAACCCCTTGGCGTGGAGGACGACGGGGTCGTCATGGGCCTGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                       GCCTCCCCTCGCCGTTCACCGCCGTGCGCCTACCACTCCCTGGCCGCCACCGA-----CC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cegaacccarecaceecceecroroceaegreceecacacceeceaegacerorroceee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCCGAACCGTCGGCCTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGAAGCGGATTTTCACATCTCGCTGCAGGCGCTGGAGCAGAACGAATTTCCGGTGTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGGAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCG
                                           CCGGGTCGGAGCAGGCCGGCAAGGTTTTAAGCGTTTGCGCGCCCCGAGATGGTGACACCGC
                                                                                      ACGGGGCCGACTCCCCGTACGAACTCCACGTGCGCCGCCGTCGACGTGCTGCCGGACGCCG
                                                                                                                                 GCAAGCGCATTGTTGCTAACTTTGCCAAGCTGGCTGCGCGCCACAGTGCACCGTTACTTG
                                                                                                                                                                       ACGTGCAACACCCGAAATGGGGAGTACAGTTCCACCCCGAATCGATCCTCACCGAACACG
                                                                                                                                                                                                                                                             ACCGCGAGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCG
                                                                                                                                                                                                                                                                                                      TGCCGCCTGTGCTGAAAGTGACGGCGCGTACCGATTGCGGTGTGGTGATGGGCTTGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                 GCATCCCGCAGCGTTTCGAGGCAGTGCGCTATCACTCGTTGATGGTCTGCCAGCAATCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGTGCCCTTTCATGGCCGTCGCTCCACCGTCATCAACACCGGCGACGGTTTGTTCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGTATGCCTGGGCTTTCAGGGACTTGCGCATGTCTATGGTGGCCGCATCCTGCATGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGAAGGACCGCGGGGGATTTTCCTCGATCATCGTTTCGCCCGGTCCCCGGCTCGGTGGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GCTGCCCGTCGACGACTTCGACGCGATCGTCGTCGTCCCCCGGGCCCCCGGCAGCCCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCAGATCTTCGGCGAAGATCCCCTGGTGGTGCACAACGACGAGTACTCCTGGCACGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCGCTGCCTTATCATAAATAATTACGATTCGTTCACTTGGAATCTCGCCGACTACGTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rececacecriciearceacaacraceacricerreacceacaaccretrecaeracaree
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gabriel DW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Frutos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 361.8; DB 1
Pred. No. 9.3e-38;
0; Mismatches 93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      producing antibiotics, preferably plants against phytotoxic damage,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         461 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ~ 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2151;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
706
                                           661
                                                                                      649
                                                                                                                                                                         589
                                                                                                                                                                                                                                                                                                                                                   469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
```

601

541 529 481

```
1709
                                                                        1649
                                                                                                                                                                                                                                                       1529
                                                                                                                                                                                                                                                                                                   1529
                                                                                                                                                                                                                                                                                                                                                1469
                                                                                                                                                                                                                                                                                                                                                                                                                                      1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1022
                                                                                                                  1649
                                                                                                                                                              1589
                                                                                                                                                                                                                                                                                                                                                                                          1469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1049
                                                                                                                                                                                                          1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    662
TCCGGGGACGGCTGCGGCCCGGCACCAGCACCAGCACCGCCTGCGTACGCGCCGCCTTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGTACGTCGCATGCTGAGCCGGAAGATCAAGTGCCGTTGGCAGGCGGAAGATGTCTTTC
                                                                                                                                                                                                 TGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTGGCTTGGCTAGACGCCATCGAGCAACGTATCCATGCCATTGGTCAAGCGGCTCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGGCTGCGGGAGACCGGAGACCCTCACCGGCCTGGCCGTCCGCGCCCCGGCCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACGGCACCACGACCCGGACGCGGCGCCCCTTCTTCAACTACCTGGAGGA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cecrceceaeracerocaeceroceceaecerocerecerocerecerocereceroce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCCGTCCTCGAAGGCGCCTCGCGCTTCTCCTTCCTCGGCGAC-----
                                                                      CCGTGCCCAAGCTGATGGACATCGAAAGCTACAAGACCGTGCATCAGATGGTCAGCACGG
                                                                                                                  ACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCA
                                                                                                                                                            TGATGATCGTCGACTTGATGCGCAACGACCTAAGCCGCGTGGCGGTGCCCGGCAGCGTCA
                                                                                                                                                                                                                                                    AACTGGACCGTAACTTGGCCATGCGCCTGGCCGCCTCGGAAAAGGACCGAGCGGAAAACT
                                                                                                                                                                                                                                                                                                 AGGAGGACGAGCGGCTCCGCGCCGACCTGGCCGGCCGGGAGAAGGACCGGGCCGAGAACC
                                                                                                                                                                                                                                                                                                                                             GCCACGGCACGATTCAGACCAAGCCAATCAAGGGCACCTGCCGCCGTGCCGAGGATCCCC
                                                                                                                                                                                                                                                                                                                                                                                          CCGACGGCGGCGTCGAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGCCGCACCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCGTAACGGTAGCGATTGTATCCTTAGTACTTCACCAGAGCGTTTTCTGGAAGTGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCCATTGATGCTCTATCGCTACATGCGGCGAGGGAACCCAGCGCCGTTCGGGGGCCTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCGATGGCGAGTCCTATGAAATCTGTCTTACCGACCTGTTCTCGTTCCAGGCCGAGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGCGCCACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGCATTTCGCTAGGCCTGCGCAGCATGGAAATCGAGCTCAATCATGGTCGTC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCACTGAGGAGGTATGGTTGCTGGCGCTCGCCGATACGGAGGA-----TCTGTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGAAGGCTGCTGCTACCTGCTGGCCCTCGACCGCCGGGGCCACGACGACGACGGCCCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCAATGCCATCCCCGATGCGTTGTGGATGCGCGTGGAGCGCTTCGTTGCCTTCGACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               genecececaceceaececececentecececeaececececececececececece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTACGTGGGCTACATGAGCTACGAAATGAAATCGGTGTTCGGCGCGCCGGCTTCACATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTACGTCGGCTACCTCGGCTACGAGCTGAAGGCGGAGACCACCGGCGACCCCGCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTTGCAATCGGTGCTTACTGAGGACGTCGCCGAGCGGCCACCGTTCGCGGTTTCGCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGCGGCCAGGAGCATGGTGCAGGAGGCAGGCGAGCGGTTTCTTGCTGAGATGGATCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAATGGCGCGCTATTCGTTCATGGGAGCGGTGAACGAGAGCGAGGTAGTGCGGCATTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GCAGCTCGAACGCCGACGGGTCCCCGTCGCCCCCGAACTGCCCTTCGAGTTCAACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -GCGGCTACCTTGAGGCAATCGAGCGTTGCAAACAACGCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1021
                                                                      1708
                                                                                                                                                            1648
                                                                                                                                                                                                        1648
                                                                                                                                                                                                                                                    1588
                                                                                                                                                                                                                                                                                                 1588
                                                                                                                                                                                                                                                                                                                                             1528
                                                                                                                                                                                                                                                                                                                                                                                          1528
                                                                                                                                                                                                                                                                                                                                                                                                                                      1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           781
                         1768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               72
```

Ś 밁 Ş g Ş В Š 밁 5 밁 Ş 멍 Ş 밁 Š В Ş В Ş 밁 Ş В Ś 멍 Š ద Ś 멍 S 밁 Ş В S В Ş 밁

Query Match

17.6%;

Score

361.8;

멂

12;

Length

```
RESULT 8
ADN36893
XX ADN36893
XX ADN36
XX ADN3
XX ADN3
XX ADN3
XX ALIBH
XW ALIBH
XW XALBH
XW WO20
XX XAN
XX ALIBH
XX WO20
XX 117-C
XX 117-C
XX 118-C
XX 117-C
XX 118-C
XX 117-C
XX 118-C
XX 117-C
XX 118-C
XX 118-C
XX 117-C
XX 118-C
XX 117-C
XX 118-C
XX 117-C
XX 118-C
XX 118-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                 polyketide
or damage a
                                            The present invention relates to a novel Albicidin family of antibiotics produced by the expression of biosynthetic gene clusters from Xanthomonas albilineans designated as XALB1, XALB2 and XALB3 (albicidin biosynthetic gene clusters 1, 2 and 3). The invention discloses the polynucleotide sequences of these gene clusters, and the proteins encoded by the open reading frames (ORFs) within the gene clusters. Also disclosed are methods for producing an antibiotic and protecting a plant against damage from albicidin and against phytotoxic damage. The present sequence represents Xanthomonas albilineans XALB1 gene cluster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Albicidin family; antibiotic p
XALB1; albicidin biosynthetic
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Royer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xanthomonas albilineans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            X. albilineans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADN36893
                                                                                                                                                                                                                                                                                                                               Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (UYFL )
(CIRA-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-OCT-2002; 2002US-0419463P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17-OCT-2003;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29-APR-2004.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO2004035760-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADN36893;
                                                                                                                                                                                                                                                                                                                                                                                                        transformed host cell, useful for yketide antibiotics for protecting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2004-365158/34.
                                                                                                                                                                                                                                                                                                                             8; SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UNIV FLORIDA.
CIRAD CENT COOP INT
55839 BP; 10970 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGCGCCATGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGCTCGATCACCGGCGCACCGAAGTTGCGCAGTATGGAGATTATTGATGGCCTGGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGAAGCGAGGCTGCGCCGATTGCAGTCTAGTCGACCTGCTTAAGGCGGTGTTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGAGGCGATCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCGCCATCACCTTCCTGTCCGACCCGCAGGATGAGTTCGACGAAGTGTTGCTGAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCTAAACATTGCGATCCGCAGTCTTTCTTATGACGGGCAGGAAATACGTTTCGGCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGCGCCGCGTGGCGTATTGCGGCAGCATCGGCTACCTGGGCTACAACTGCGTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGGCCCCCGGGCGTCTACTCCGGGGCGCCTCGGATGGTTCGCCCTCAGCGGCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gabriel DW,
                                                                                                                                                                                                                                                                                                                          ID NO 1; 193pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2003WO-US033142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         XALB1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         antibiotic production; biosynthetic gene cluster;
biosynthetic gene cluster 1; phytotoxic damage; ge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entry.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Frutos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        55839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cluster
16145 C; 17705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EN RECH AGRONOMIQUE
                                                                                                                                                                                                                                                                                                                          English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rott
                                                                                                                                                                                                                                                                                                                                                                                                        producing antibiotics, preferably plants against phytotoxic damage,
G;
  11019 T;
  0
  Ŭ,
     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1768
```

9 9 9 9 9 9 9 9

989 GGTCCCCGCACCCCGACGCCGCTTCCTCTTCGCCGACCGCCCATCGCCCTCGACCACC 1048		870 -GCAGCTCGAACGCCGACGGGTCCCCCGAACTGCCCTTCGAGTTCAACCTCG 928	821 ACGGCACCACGACCCGGACGCGCCCCTTCTTCAACTACCTGGAGGA 869		707 GCTCCGTCCTCGAAGGCGCCTCGCGCTTCTCCTTCCTCGGCGACGACCGCGGCC 760	650 AAGAGGTACCCGCGGCTGCCCGGCGAGGGCACCACGTTCTGGCTGG	590 ACGGGGCCGACTCCCCGTACGAACTCCAACGTGCCGCTGCGACGTGCTGCCGGAACGCCG 649	530 GCCGGGAGATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGCACGGCGCC 589	470 ACCGCGAGAAGCCGCTGTGGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCG 529	410 TCCCCGACGAGCTCGAACCCCTCGCCTGGAGCGACGACGAGGGTCGTCATGGGCCTGCGGC 469	356 GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACC 409	296 CGGAACCCATGCACGGCCGGGTCTCCCGAGGTGCGGCACGACGAGGACGTCTTCCGGG 355	236 GCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCC 295	176 GGGAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCG 235	117 -GCTGCCCGTCGAGGACTTCGACGCGATCGTCGTCCCCGGGCCCCGGCAGCCCCGACC 175	/ 62 GCGAGGCCACCGGGCAACCCCCCGTCGTCGTCCCAACGACGACGACTGGTCGCG 116	7 2 TGCGCACGCTTCTGATCGACCACCTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG 61	Best Local Similarity 51.4%; Pred. No. 4.8e-38; Matches 1057; Conservative 0; Mismatches 932; Indels 66; Gaps 7;
AASS9535	Qy 2009 CCCGCGCCATGGTCA 2023	Qy 1949 GCGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGTTCACCGAGACCGTGGTAAAGG 2008	Qy 1889 ACCTCAGCATCCGCCACCATCGTGCTGGCCGACGGCCGAGGCGAGTTCGGCGTCG 1948	Qy 1829 AAGGCCCCCGGGGCGTCTACTCCGGGGCGCTCGATGGTTCGCCCTCAGCGGCGCCGCCG 1888	Qy 1769 GCGCTCCATGACCGGCGCCCCAAGAAGCCCACCATGGAGATCATCGACCGCCTGGAGG 1828	Db 16617 TGGAAGCGAGCGCGCCGACTACGAGCACCGCCTTAAGGCGGCGCCTTCCCCG 1768	1649 16557	Oy 1589 TGATGATCGTCGACTGGTCCGCAACGACGTCTCAACAGCGTCTGGGCTCCGGCTCC 1648	Qy 1529 AGGAGGACGACGGCCGGCCGACCTGGCCGGCCGGACAAGGACCGGGCCGAGAAACC 1588	Oy 1469 CCGACGGCGCGGGTCGAGTCCAAGCCCATCAAGGGGACCCGCCGCGGGGGGGCACCGCGG 1528	16317	1349 CGCCCTGCCGCTCTACTCCGCGCCTGCGCATCACCCCGTCCCGTACGGCCCTGC	1289 16197	Oy 1229 GCGCGCCACGAGAAGGACGCCTAACCTCAAGCGCATCGACGAGTCCCTCAAGGAGATCC 1288	16102	1109 COTGGCTGCGGGAGACGCCGAGACCCTCACCGGCCTGGCCGTCCGGCCCGGCCGAGC	15990	15930 CCAATGCCATCCCCGATGCGTTGTGGATGCGCGTGGAGCGCTTCGTTGCCTTCGACCACG

음 성

유왕

유 성

음 성

B 8 B 9 B B

중 음

```
밁
                                     Ş
                                                                                            밁
                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                 Query Match
Best Local :
                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                  particularly involved in the inflammatory lesions associated with acne vulgaris. A method for detecting the presence or absence of P. acnes in a patient comprises contacting a sample with a binding agent that binds to the proteins of the invention and determining the amount of bound protein in the sample. The polypeptides may be used as antigens in the production of antibodies specific for P. acnes proteins. These antibodies can be used to downregulate expression and activity of P. acnes polypeptides and therefore treat P. acnes infections. The antibodies may also be used as diagnostic agents for determining P. acnes presence, for example, by enzyme linked immunosorbent assay (ELISA). This sequence encodes the polypeptides shown in AAU46704-AAU46985 and AAU67509. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequences AAS59506-AAS59804 represent DNA molecules encoding Propionibacterium acnes immunogenic polypeptides. The proteins and their associated DNA sequences are used in the treatment, prevention and diagnosis of medical conditions caused by P. acnes. The disorders include SAPHO syndrome (synovitis, acne, pustulosis, hypertosis and osteomyelitis), uveitis and endophthalmitis. P. acnes is also involved in infections of bone, joints and the central nervous system, however it is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21-APR-2000; 2000US-0199047P.
02-JUN-2000; 2000US-0208841P.
07-JUL-2000; 2000US-0216747P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SAPHO syndrome; synovitis; acne; pustulosis; hypertosis; osteomyelitis uveitis; endophthalmitis; bone; joint; central nervous system; ELISA; inflammatory lesion; acne vulgaris; enzyme linked immunosorbent assay; dermatological; osteopathic; neuroprotectant; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 1; SEQ ID NO 30; 1069pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Propionibacterium acnes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Skeiky
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20-APR-2001; 2001WO-US012865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200181581-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Propionibacterium acnes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Propionibacterium acnes immunogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAS59535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (CORI-) CORIXA CORP.
                                                                                                                                                                                                              Local
                                                                                                                                                                                             1057;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             inating against and
                                            70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YAW,
                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                            .int/pub/published_pct_sequences
AGCGGGATCGAGCCAGTGGTGGTCCGCCCCGAGGAGGTCGAGCGTGCAGGGATCCTCCGC
                                                                                            ĊTGĊTĞGTTĞACAACCACĞATTCCTTCACCTTCAACCTĞGCACACCTATTĞĞCCĞAAĞTC
                                                                                                                          CTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCGGCGAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    standard;
                                            ACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCG--
                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Persing DH,
e J, Zhang Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       vulgaris.
                                                                                                                                                                                                                                                                                       5546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA;
                                                                                                                                                                                                            15.3%;
                                                                                                                                                                                                                                                                                       Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          polypeptides and nucleic acids useful for diagnosing infections, especially useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mitcham,
                                                                                                                                                                                                                                                                                       8173
                                                                                                                                                                                          0;
                                                                                                                                                                                                            Score 316; DB 4;
Pred. No. 3.7e-32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       English.
                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                       C; 7885 G; 4699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dL, Carter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Wang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ss,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      encoding
                                                                                                                                                                                                                                     Length 26309;
                                                                                                                                                                                                                                                                                       Ţ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bhatia
                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                       0 U; 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         osteomyelitis;
                                                                                                                                                                                                                                                                                       Other;
                                                                                                                                                                                        78;
                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for
                                                                                            19074
19134
                                            114
                                                                                                                                              69
                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                         S
                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                      밁
                                                                                                                  뭐
                                                                                                                                                          S
                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19672
                                                                                                                                                                                                                 20032
                                                                                                                                                                                                                                                                                                               19972
                                                                                                                                                                                                                                                                                                                                                                                                            19912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGATTGGCTGATGGCGAATTCGACCACGTGGTTATCGGTCCAGGACCTGGCTCCCCGCAC
                        GAGGCCGCTGATC
                                                                     CGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCACCGGCCTGGCCGTCCGCGCCCCGGCC
                                                                                                                                                               сиссивения в поста с поста с поста в по
                                                                                                                                                                                                                 CACTGCAGCGAACTGCCCGATGCCATGTGGATGCGTCCGGCCAGCTGGATTGCGTACGAC
                                                                                                                                                                                                                                                                                                               GGTGGCTATGTCGGTTTCCTGGGCTATGAGTGCAAGGCGCTGACCTTGGGCCCGAATGCG
                                                                                                                                                                                                                                                                                                                                                                                                            CGCCGTCTTGCAGATGGAGTATCACGGAGGGACCCGGAACTAGATGACATCCCATTCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACAAACACGTTGACGGTCAACGGGCGAACCCCAGTCTGGTGATGTGCTGGACTTCTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGAGTGTCATGGGCACGGCGTCGGGGGGCGCATCCGAACTGGTCAGTTACGACGTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGGAGATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCGAGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGTGACCAGATCGTCGAACATGCTCGCGCCGAGGATGGCGCCATCATGGCGTTCGAGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGGGCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCGCCGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCATTCGGCCCCATCACGGCATCGTCAGCCGAATTCATCACTCCAGGCGTGGAATCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCCGGAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCCCGGCGAGGACGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCGGGGTGTGCCTGGGCCACCAAGGCCTCG----GGTTACGTCACGGTGCCCAGTTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCGGCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAAACCGTCGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACGACAAGGACTTCAAGACCGCCGGACAGGTGATCGATGCCTCCAACAAGCTCCCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ceeepaceeeectreccerceceeecearca ---cceacaeceeccreccerc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCTGCCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCGGCAGCCCCGAC
                                                                                                                                                                                                                                                              CACCGGTCCCCGCACCCCGACGCCGTTCCTCTTCGCCGACCGCCCATCGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                          CTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAGGCGGAGACCACCGGCGACCCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCGACGGGTCCCCGTCGCCCCCGAACTGCCCTTCGA------GTTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACGGCACCACGACCCGGACGCGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccecrceccaeraccraccraccecerceccaecercercercraccercececec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGGCGACGGTGACGCCTTCTGGTTGGACTCGGCCACCACGCGTGGCGACACCGGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACAGCAGCTCCGTCCTCGAAGGCGCCTCGCGGCTTCTCCTTCGGCGACGACGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACAATCCACCACCAAACGGTGGACATCGACCTCGACGAAGAAGCCACCTTCAGCCGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGCCGAAGAGGTACGCCGCGG-----CTGCCTGCCCGGCGAGGGCACCACGTTCTGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACAAACGCGAACCGCGCAACATCCAGTCACGAAAGTGTGCCCGGACTACGGCACGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGCCGACTCCCCGTACGAACTCC-----ACGTGCGCCGCGTCGACGTGCTGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCCTTGGACGACCGTGACACGCCCGGCTGCAAT
                        TATTGGACGCACTGGCTGCGACGCTGGT
                                                                                                                                                                                                                                                                1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19194
                                                                                                                                                                                                                                                                                                                                                               984
                                                                                                                                                                                                                                                                                                                                                                                                              19971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    351
                                                                                                                                                                                                                                                                                                               2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1991:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           174
```

```
RESULT 10
ACF64464
ID ACF64
XX
XX
AC ACF64
XX
XX
T17-OC
DT 17-OC
XX
XX
AC Propi
XX
XX
Acne
KW Acne
KW immur
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ई
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
Acne vulgaris; antiseborrhoeic; dermatological; antibacterial; immunostimulant; immune response; vaccine; ds.
                                                                                                                                                                                           ACF64464 standard; DNA; 26309
                                                             Propionibacterium acnes DNA contig sequence
                                                                                                        17-OCT-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1345
                                                                                                                                                                                                                                                                                              CTCAAAGCGGCGCACCGTTGGCTGCGCTGACGCTGTCAGCCGGGCCAGG 21074
                                                                                                                                                                                                                                                                                                                                     GTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGCGCCCGTGGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGGCGCTCGGATGGTTCGCCCTCAGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCGTCCACGTGCCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGC 1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATCCGGTGGAGGATGCCCGGGGAATTGTCGATTTACAACATGACGCGAAAAACCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                 GGTGCCGGCGCGCAATCGTCGCAGCTTCCCAGCCTGACGAGGAGTGGCGCGAGAAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                        egcercegegegegenreererecercreceaecagegagegagagreerecegagacege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCGCCGACCTCAGCATCGTGATACGGACGGTGATCCGAACGGGGTCGCAGGTAACGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCCCTGGTGGATCGATGACCGGGGCACCGAAGGAACGGTCCGTAGAAATCCTGGACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCACCGCCGCCTGCGTACGCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGGTGGAGGTACCACGTCTGATGGCGATCGAGTCATATGCGACGGTGCACCAGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGAATCTCATGATCGCTGATCTGGTGCGCAACGACCTGTCGCGCGTGTGCCAACCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGCGGAGGAGGACGAGCGCCTCCGCGCCGACCTGGCCGGGCCGGGAGAAGGACCGGGCC 1581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGAGTACGCGACGGCATCGCTGAATCCAAGCCGATCAAGGGGACAATGGCTCGCTGTGAT 20544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATCTTCGGTTTACCGACCCGCGTGTGGAGGTGTGCTCTTCATCCCCGGAACGGTTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGCTCGAGTTCCCCGAACTG---TCGGTGCTGAGCGCCCCGAGCGGTTCCTCACG 1461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGACGGCTGGCGGTTGTACCGCGCACTGCGGCGTCGAAACCCAGCCCCTATGGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTAACGCGCGGTGACTCGTACGAGGCCTGTCTGACCGACACGTGGACCTCCCGGTGCGAC 20364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCGCGCGCGACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGGAGGTCGGCGCCCGGGAATCTACTCGGGAATCCTGGGATATCTCGGCTTCGATCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCGGCGCCGACGGCGCGCGCGACTCCAAGCCCATCAAGGGGGACCCGCCCCCGGGGGGGC 1521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGACGGCCCTGCCGCTCTACTCCGCGCGCGCGCCATCAGCCCCGTCCCGTACGGCGCC 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAGCGACCAGGTAGCAGCGAAGAGCCCGCACCGCTAACCGTGCCTGTGGAAGGGTCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----GCGGCTCAGCCGAGGGGGCTACCAGGACCGTGTTGCCGCAATCCAGCAGGCG
                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                         2051
                                                                                                                                                                                                                                                                                                                                                                                                                          2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20724
                                                                                                                                                                                                                                                                                                                                                                                 21024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20964
```

```
S
                                                    무
                                                                                       Ş
                                                                                                                                       밁
                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                  CC The invention relates to an isolated polynucleotide (ACF64435-ACF64733) CC encoding a Propionibacterium acnes protéin. The invention also relates to polypeptides encoded by the polynucleotides (ABM35624-ABM64536) and to CC polypeptides encompasses expression vectors and host cells comprising a CC polynucleotide of the invention; antibodies against polypeptides of the invention; a comprising a polypeptide of the invention; a complete and an isolated T cell population comprising T cells prepared conting entrypeptides, antibodies, fusion proteins, T cell populations, or contingent; and a method; a vaccine composition (comprising P. acnes polypeptides, contingent; and a method for inhibiting the presence of P. acnes in a constitut; and a method for inhibiting the development of P. acnes in a constitut; and a method for inhibiting the development of P. acnes in a content and a method for diagnosing, preventing cells that express the polypeptides, antibodies, fusion conteins, or for stimulations or antigen-presenting cells that express the polypeptides are useful for diagnosing, preventing cells that express the polypeptides are useful for diagnosing, preventing or treating acnes concein and hybridiastion. The vaccine composition is useful for a P. acnes conceins and the kit is useful for performing a diagnostic assay. The present conceins and the kit is useful for performing a diagnostic assay. The present conceins in the invention. Note: The sequence data for this specifically claimed concents and the period specification, but was obtained in electronic format concents and the period and the period and the period and per
                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 1057; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mitcham JL,
Zhang Y, Wa
Barth B, Va
                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 26309 BP; 5546 A; 8173 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New Propionibacterium acnes polypeptides and polynucleotides encoding polypeptide, useful for diagnosing, preventing or treating acne vulgar or for stimulating an immune response specific for a P. acnes protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 1; SEQ ID NO 30; 1481pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2003-381789/36.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-OCT-2001; 2001US-00978825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-OCT-2002; 2002WO-US032727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Propionibacterium
                                                                                                                                            19075
                                                                                                                                                                                                                                                                                 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORIXA
       CGGGAACGGGACTTCGGAATCAGCCGCCGGGCGATCA---CCGACAGCGGCCTGCCCGTC
                                                                                                                                         AGCGGGATCGAGCCAGTGGTGGTCCGCCCCGAGGAGGTCGAGCGTGCAGGGATCCTCCGC
                                                                                                                                                                                       ACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCG--
                                                                                                                                                                                                                                    CTGCTGGTTGACAACCACGATTCCTTCACCTTCAACCTGGCACACCTATTGGCCGAAGTC
                                                    CGATTGGCTGATGGCGAATTCGACCACGTGGTTATCGGTCCAGGACCTGGCTCCCCGCAC
                                                                                       CGGCTGCCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGAC
                                                                                                                                                                                                                                                                              CTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCGGCGAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Wang S, Jen S, 1
Vallieve-Douglass
                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Skeiky YAW,
ang S, Jen S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acnes.
                                                                                                                                                                                                                                                                                                                                               15.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Persing
Lodes M
                                                                                                                                                                                                                                                                                                                            <u>,</u>
                                                                                                                                                                                                                                                                                                                            Score 316; DB 8;
Pred. No. 3.7e-32;
0; Mismatches 955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           J DH,
                                                                                                                                                                                                                                                                                                                                                                                                                 7885 G; 4699 T; 0 U; 6 Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bhatia A,
Benson DR,
                                                                                                                                                                                                                                                                                                                              955;
                                                                                                                                                                                                                                                                                                                                                                    Length 26309;
                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maisonneuve JL;
Jones R, Carter
                                                                                                                                                                                                                                                                                                                            78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acne vulgaris,
                                                    19194
                                                                                                                                         19134
                                                                                                                                                                                                                                    19074
```

밁

19195 AACGACAAGGACTTCAAGACCGCCGGACAGGTGATCGATGCCTCCAACAAGCTCCCCCTG 1925

```
20032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAGGCGGAGACCCACCGGCGACCCCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGACCGCCGGGGGCCACGACGACGACGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACAPACACGTTGACGGTCAACGGGCGAACCCCAGTCTGGTGATGTGCTGGACTTCTTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGGAGATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGAGAAGCCGCTGTGGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGGCCGCTGATC
                                                                                                                                                                                                                                                                                                                                                     CGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCACCGGCCTGGCCGTCCGCGCCCCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACTGCAGCGAACTGCCCGATGCCATGTGGATGCGTCCGGCCAGCTGGATTGCGTACGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACCGGTCCCCCCAACCCCCGACGCGTTCCTTCGCCGACCGCCCATCGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTGGCTATGTCGGTTTCCTGGGCTATGAGTGCAAGGCGCTGACCTTGGGCCCGAATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CÉCCÉTCTTECAGATEGAGTATCACEGAGEGACCCEGAACTAGATGACATCCCATTCACA 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGAGTGTCATGGGCACGGCGTCGGGGGGGCGCATCCGAACTGGTCAGTTACGACGTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGCCGAAGAGGTACGCCGCGG----CTGCCTGCCCGGCGAGGGCCACGTTCTGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTGACCAGATCGTCGAACATGCTCGCGCCGAGGATGGCGCCATCATGGCGTTCGAGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCGACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGTCGTCATGGGCCTGCGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCATTCGGCCCCATCACGGCATCGTCAGCCGAATTCATCACTCCAGGCGTGGAATCTTC
                                                                                              GCCCGCGCGCGCCACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAG
                                                                                                                                                                                                                         GAGCCGACCCCCCCATGGTCTTCGGGATCCCCGAGGCGGCGGCCTCGGCTTCGGCCCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                      CACTACCGGCATCACGCTCACCTCCTAGCCTTGGACGACGTGACACGCCCGGCTGCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCGACGGGTCCCCGTCGCCCCCGAACTGCCCTTCGA------GTTCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACGGCACCACGACCCGGACGCGCGCCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGGCGACGGTGACGCCTTCTGGTTGGACTCGGCCACCACGCGTGGCGACACCGGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACAATCCACCACCAAACGGTGGACATCGACCTCGACGAAGAAGCCACCTTCAGCCGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACAAACGCGAACCGCAACATCCAGTCACGAAAGTGTGCCCGGACTACGGCACGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGGCCGACTCCCCGTACGAACTCC------ACGTGCGCCGCGTCGACGTGCTGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGTCÁGTTAATGACGAACTTCCTGGCGATCGGCAGCCAGCCACGACACAGCGAGGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCGGAACCCATGCACGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTC
                                   GCGGCTCAGCCGAGGGGCTACCAGGACCGTGTTGCCGCAATCCAGCAGGCG
                                                                                                                                                                                                                                                                                          -----TATTGGACGCACTGGCTGCGACGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2009:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19371
                                                                                                 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19311
RESULT 11
ACA42265
ID ACA42
XX ACA42
XX I9-JU
DT 19-JU
XX Antis
XX Antis
XX Antis
XX ANTis
XX ANTS
XX 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭐
                                                                                                                                                                                         Pseudomonas aeruginosa
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                  20785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20485
21025
                                                                                                                                                                                                  20905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20305
                                                                                                                                                                                                                                                                                                                                                1822
                                              GTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGCGCCGTGGCGGG
                                                                                                                                                                                                                                                 GCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCCGAGTTC
                                                                                                                                                                                                                                                                                                                            CTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCCTCGGATGGTTCGCCCTCAGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                   TTCCCCGGCGCTCCATGACCGGCGCCCCAAGAAGCGCACCATGGAGATCATCGACCGC 1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACCGCCGCCCTGCGTACGCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGGTGGAGGTACCACGTCTGATGGCGATCGAGTCATATGCGACGGTGCACCAGATGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCCGTGCACCAGCTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGAATCTCATGATCGCTGATCTGGTGCGCAACGACCTGTCGCGCGTGTGCCAACCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATCCGGTGGAGGATGCCCGGGGAATTGTCGATTTACAACATGACGCGAAAAAACCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGAGTACGCGACGGCATCGCTGAATCCAAGCCGATCAAGGGGAACAATGGCTCGCTGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCGGCGCCGACGGCGTCGAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TATCTTCGGTTTACCGACCCGCGTGTGGAGGTGTGCTCTTCATCCCCGGAACGGTTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGACGGCCCTGCCGCTCTACTCCGCGCGCGCGCCCATCAGCCCCGTCCCGTACGGCGCC 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTAACGCGCGGTGACTCGTACGAGGCCTGTCTGACCGACACGTGGACCTCCCGGTGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCAAAGCGGCGGCACCGTTGGCTGCGCTGACGCTGTCAGCCGGGCCAGG
                                                                                               GGTGCCGGCGCGAATCGTCGCAGCTTCCCAGCCTGACGAGGAGTGGCGCGAGAAGAAC
                                                                                                                                                 GGCGTCGGCGGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTG
                                                                                                                                                                                                  ACCGCCGACCTCAGCATCGTGATACGGACGGTGATCCGAACGGGGTCGCAGGTAACGGTC
                                                                                                                                                                                                                                                                                                    CTGGAGGTCGGCGCCCGGGGAATCTACTCGGGAATCCTGGGATATCTCGGCTTCGATCGC
                                                                                                                                                                                                                                                                                                                                                                                                    TTCCCTGGTGGATCGATGACCGGGGCACCGAAGGAACGGTCCGTAGAAATCCTGGACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     crecreaerrececeaecre---recerecreaececreeceaececreerrecreaee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGACGGCTGGCGGTTGTACCGCGCACTGCGGCGTCGAAACCCCAGCCCCCTATGGGGCG
                                                 2051
21074
                                                                                                                                                 2001
                                                                                                                                                                                                                                                                                                                                                   1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20424
```

ACA42265 standard; DNA; 1362 ВP

(first entry

Prokaryotic essential gene #23922

Antisense; ds; prokaryotic essential gene; cell proliferation; drug design; gene.

03-OCT-2002

Ş 밁 S 밁 Ş 뫄 Ś Дb Ş 멍 S 밁 Ś 멍 Ş g Ş 뫄 Ś 뮍 Ş 멍 Ş 밁 Ś 밁 Ş 밁 Ş дь Ś 멍 Ş 망 Š

밁

21-MAR-2002; 2002WO-US009107

```
δ
                                                                                                                                        밁
                                                                                                                                                                          8
                                                                                                                                                                                                                  멍
                         Ş
                                                               밁
                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the 6213 antisense sequences given in the specification where expression of the nucleic acid inhibits proliferation of a cell. Also included are: (1) a vector comprising a promoter operably linked to the nucleic acid cencoling a polypeptide whose expression is inhibited by the antisense nucleic acid; (2) a host cell containing the vector; (3) an isolated containing the polypeptide by the containing the polypeptide; (6) inhibiting cellular containing the polypeptide; (6) inhibiting cellular containing the polypeptide; (6) inhibiting cellular contiferation; (7) identifying a compound that influences the activity of the gene product or that has an activity against a biological pathway contained for proliferation, or that inhibits cellular proliferation of the biological pathway in which a proliferation required gene or its gene product lies cor agene on which the test compound that inhibits proliferation of an organism acts; (9) manufacturing an antibiotic; (10) profiling a compound's activity; (11) a culture comprising strains in which the gene contains; or (13) identifying the target of a compound that inhibits the contains; or (13) identifying the target of a compound that inhibits the contains; or (13) identifying the target of a compound that inhibits the contains in which the contains in which the gene contains in the cation of a contains in contains are useful for identifying proteins or screening for homologous nucleic acids required contained the contained molecules for rational contains and con
                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-MAR-2001;
06-SEP-2001;
25-OCT-2001;
08-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                      drug discovery programs, or for screening homologous nucleic acids required for proliferation in cells other than S. aureus, S. typhimurium, K. pneumoniae or P. aeruginosa. The present sequence is one of the target prokaryotic essential genes. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                      ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 14; SEQ ID NO 30135; 1766pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-MAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (ELIT-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            antisense nucleic acids, useful for identifying proteins or screening homologous nucleic acids required for cellular proliferation to late candidate molecules for rational drug discovery programs.
                           1407
                                                                                                                                                                                1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   invention relates to an isolated nucleic acid comprising any one of
                                                               648
                                                                                                                                          588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2003-029926/02.
                                                                                                                                                                                                                                                                                             al Similarity
487; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ELITRA PHARM
GCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGG
                                                                                                                                                                                                                                                 CCGCGCGCGCCACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGAT
                                                                                         GACGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCT
                                                                                                                                                                        CCGACGGAGCATCAGCGCATCCGACTATCGGCAGGCGATCCGCCGCATCCAGGACTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zamudio
Trawick
                                                           CTCGCCGTGGCCGATCGCGCCCTGCGCGAGGCCTGCCCGACGCCGTTCTCCGGCTA
                                                                                                                                    CCAGGCAGGCGACTGCTACCAGGTGAACTATAGCCAGCGCTTCCAGGCCGCTTGCAGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; 2001US-00815242.
; 2001US-00948993.
; 2001US-0342923P.
; 2002US-00072851.
; 2002US-0362699P.
                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                    B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á,
                                                                                                                                                                                                                                                                                                                                                                    243
                                                                                                                                                                                                                                                                                                           13.1%; 58.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Malone
Carr G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INC.
                                                                                                                                                                                                                                                                                                                                                                  A; 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ໌ດ <sub>ເ</sub>
                                                                                                                                                                                                                                                                                         Score 270; DB
Pred. No. 4.6e
0; Mismatches
                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                    C; 430 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Haselbeck R, Yamamoto R,
                                                                                                                                                                                                                                                                                                                                                                  210 T; 0
                                                                                                                                                                                                                                                                                                           DB 8;
                                                                                                                                                                                                                                                                                           340;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ohlsen
Forsyth
                                                                                                                                                                                                                                                                                                                           Length 1362;
                                                                                                                                                                                                                                                                                                                                                                  U; 0 Other;
                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7, 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zyskind
Xu HH;
                                                                                                                                                                                                                                                                                         ω
--
                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ä
                                                                                                 1406
                                                                                                                                                                          1346
                                                                                                                                                                                                                                                   1286
                                                           707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .6
```

```
몽
                                                 1245
                                                                                                                                                                                                                                          1125
                                                                                                                                                                                                                                                                                                                                     1065
                                                                                                                                                                                                                                                                                                                                                                                                                                   1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    708
egccceccaregreacceccciceaceecaececcccicereecececccc
                                                                            CGGCGGGGCGATCGTGCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAA
                                                                                                                                                                                         CGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGT
                                                                                                                                                                                                                                     ACCGAGCCGACGCGCATCTACTGCGGCAGCCTGTTCTACCTCGACGTGCGCGGCGAGAT
                                                                                                                                                                                                                                                                                                                                                              CGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTCACCGGCGAACTGGCGCCGGGCAAGGACGCCCTCGACCTGCTGGAAGGCAGCTTCCC
                                              CGGCGGCGCATCGTCGCCGACTCGCACTGGGAGGACGACTACCAGGAAACCCCTGGACAA
                                                                                                                                            GGACAGCTCGATCGCCATCCGCACCCTGCTGGTCAGGGACGGCCAGGTCAGTTGCTGGGG
                                                                                                                                                                                                                                                                                  GGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCCTCGGATGGTTCGCCCTCAGCGGCGCCCC
                                                                                                                                                                                                                                                                                                                                   CGGCGGCTCGATCACCGGCGCGCGAAGATTCGCGCCATGCAGATCATCGACGAGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CATCCGGGACGGCTGCGGCACCAGÇACCGCCGCCTGCGTACGCGCCCTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGGGTACCGGAGCTGTTTGCCCCTGGAAAGCTATCCCAACGTGCATCACCTGGTGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ccacerecceecrerreeaegreeaegecerecceececececececegecece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTGATGATCGTCGACCTGCTGCGCAACGACATCGGACGCAGTTGCCAACCTGGCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGAGGAGACATGGCGCTGGCGGCGTCGCTGCTGGCCAGCCCCAAGGACCGCGCAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGCGACTGGCCGACGCGCGATCCTCAG¢CTGTCGCCGGAGCGCTTCCTCAAGCTCGG
                                                                                             2006
                                                                                                                                                                                                                                     1184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1586
                                                                                                                                            1244
                                                                                                                                                                                         1946
                                                                                                                                                                                                                                                                                    1886
                                                                                                                                                                                                                                                                                                                                                                                  1826
                                                                                                                                                                                                                                                                                                                                                                                                                              1064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      824
```

```
RESULT 12
ABD14809/c
ID ABD148
XX ABD148
XX Pseudo
XX Pseudo
XX Bacter
XX Bacter
XX Bacter
XX Bacter
XX Bacter
XX Bacter
XX IS-FEB
PR 18-FEB
PR 18-FEB
PR 18-FEB
PR 27-JUL
XX IS-FEB
PR 27-JUL
XX IS
        WPI; 2003-615309/58.
P-PSDB; ABO81238.
                                                                                                                                Rubenfield
                                                                                                                                                                                                                                                                                          18-FEB-1998;
27-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        antibacterial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacterial infection; gene; ds; Pseudomonas aeruginosa infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pseudomonas aeruginosa polynucleotide #13413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABD14809
                                                                                                                                                                                                                                                                                                                                                                                                                           18-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard;
                                                                                                                                3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first
                                                                                                                                                                                                                                                                                          98US-0074788P
98US-0094190P
                                                                                                                                                                                                             THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                       9908-00252991
                                                                                                                            Nolling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entry)
                                                                                                                            Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1101
                                                                                                                                                                                                                  CORP
                                                                                                                            Deloughery
                                                                                                                        Ç
                                                                                                                                Bush
                                                                                                                        U
```

```
Matches 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         including anti-P. aeruginosa drugs, as templates for recombinant production of P. aeruginosa-derived peptides or polypeptides, as target components for diagnosis and/or treatment of P. aeruginosa-caused infection, and in detection of P. aeruginosa sequences or other sequences of Pseudomonas species using biochip technology. Sequences ABD01397-ABD17967 represent P. aeruginosa polynucleotides of the invention. Note: The sequence data for this patent did not form part of the printed specification but was obtained in electronic format from USPTO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bacterial infection, for evaluating a compound, such as a polypeptide, for the ability to bind a P. aeruginosa nucleic acid, as components of effective antibacterial targets, as targets for antibacterial drugs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to Pseudomonas aeruginosa polypeptides and the polynucleotides encoding them. The sequences are useful in diagnosis therapy of pathological conditions, as molecular targets for diagnost prophylaxis and treatment of pathological conditions resulting from a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Novel isolated nucleic acid encoding Pseudomonas aeruginosa polypeptide, useful as molecular targets for diagnostics, prophylaxis and treatment of pathological conditions resulting from bacterial infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seqdata.uspto.gov/sequence.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1347
                                                     1827
                                                                                                                                                             1767
                                                                                                                                                                                                                                                                      1707
                                                                                                                                                                                                                                                                                                                                                                              1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1287
                                                                                                           325
                                                                                                                                                                                                                   385
                                                                                                                                                                                                                                                                                                                           445
                                                                                                                                                                                                                                                                                                                                                                                                                                    505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACGGCCTGCCGCTCTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1101 BP; 158 A; 355 C; 381
                               GGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCCTCGGATGGTTCGCCCCTCAGCGGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCGCCGTGGCCGATCGCGCCCTGCCGAGGCCTGCCCGACGCCGTTCTCCGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGACGGAGCATCAGCGCATCCGACTATCGGCAGGCGATCCGCCGCATCCAGGACTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGCGCGCGCCACGACAAGGACCCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGAT
ACCGAGCCGACGCGCATCTACTGCGGCAGCCTGTTCTACCTCGACGTGCGCGGCGAGAT
                                                                                                                                                             CGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGA
                                                                                                                                                                                                                CGTCACCGGCGAACTGGCGCCGGGCAAGGACGCCCTCGACCTGCTGGAAGGCAGCTTCCC
                                                                                                                                                                                                                                                                   CATCCGGGGACGGCTGCGGCCCGGCACCAGCACCGCCTGCGTACGCGCCCTTCCC
                                                                                                                                                                                                                                                                                                                           ACGGGTACCGGAGCTGTTCGCCCTGGAAAGCTATCCCAACGTGCATCACCTGGTGAGCAG
                                                                                                                                                                                                                                                                                                                                                                              CCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGAC 1706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGAGGAGGACATGGCGCTGGCGGCGTCGCTGCTGGCCAGCCCCAAGGACCGCGCGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCGACGGCGCGTCGAGTCCAAGCCCATCAAGGGGACCCGCCCCGGGGCGCCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCAGGCAGGCGACTGCTACCAGGTGAACTATAGCCAGCGCTTCCAGGCCGCTTGCAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGATGATCGTCGACCTGCTGCGCAACGACATCGGACGCAGTTGCCAACCTGGCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCGGCTCGATCACCGGCGCCGAAGATTCGCGCCATGCAGATCATCGACGAACTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NO 13413; 455pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 268.4; I
Pred. No. 7.7e-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ŧ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       341;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0 U;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                diagnostics,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1346
                                                  1886
                                                                                                                                                                                                                                                                                                                           386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               803
                                                                                                        266
                                                                                                                                                             1826
                                                                                                                                                                                                                326
                                                                                                                                                                                                                                                                                                                                                                                                                                    446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               506
```

Ś В á 망 Ś

밁

Ś

밁 Ś 몽 Ś 밁 á В Ş 밁 S 밁

265

Best Local Sir Matches 486; Query Match Best Local :

Similarity

13.0%;

Score 268.4; I Pred. No. 7.3e-0; Mismatches

7.3e-26;

Indels

ω •• Gaps

1;

Length 1431; 0 Other;

Conservative

0

Sequence 1431 BP;

262 A; 503 C; 441 G;

225 T; 0 U; DB 11;

S 밁 S

밁

```
RESULT 13
ABD15129
ID ABD15
XX ABD15
XX Pseud
XX Bacte
KW Bacte
KW antib
OX Pseud
XX US655
XX 18-FE
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                      The invention relates to Pseudomonas aeruginosa polypeptides and the complynucleotides encoding them. The sequences are useful in diagnosis and complynucleotides encoding them. The sequences are useful in diagnosis and compound the prophylaxis and treatment of pathological conditions resulting from a compound, such as a polypeptide, component to bind a P. aeruginosa nucleic acid, as components of components of concluding anti-P. aeruginosa drugs, as targets for recombinant components for including anti-P. aeruginosa drugs, as templates for recombinant components for diagnosis and/or treatment of P. aeruginosa-derived peptides or polypeptides, as target components for diagnosis and/or treatment of P. aeruginosa-caused components for diagnosis and/or treatment of P. aeruginosa-caused components species using biochip technology. Sequences ABD1397-components P. aeruginosa polypucleotides of the invention. Note: The sequence data for this patent did not form part of the printed specification but was obtained in electronic format from USPTO at components.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Novel isolated nucleic acid encoding Pseudomonas aeruginosa polypeptide, useful as molecular targets for diagnostics, prophylaxis and treatment of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; SEQ ID NO 13733; 455pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pathological conditions resulting from bacterial infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2003-615309/58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rubenfield MJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18-FEB-1998;
27-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacterial infection; gene; ds; Pseudomonas aeruginosa infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pseudomonas aeruginosa polynucleotide #13733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABD15129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABD15129 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US6551795-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antibacterial.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (GENO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     205 GGACAGCTCGATCGCCATCCGCACCCTGCTGAGGAACGGCCAGGTCAGTTGCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAAGGCGGAAGTTCGGCGT 1946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    egecececeare en a consequencia de la consequencia della                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTCCGGGTGCTGCAAACCCTGGAAGGGATGGCCGGGACAGCGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCGGCATCGTCGCCGACTCGCACTGGGAGGACGAGTACCAGGAAACCCTGGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGGGGGGATCGTGCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0074788P
98US-0094190P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-00252991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nolling J, Deloughery
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bush
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86
```

```
ADBOGOTY
ID ADBOG
XX
AC ADBOG
XX
AC ADBOG
XX
AC ADBOG
XX
AC ADBOG
XX
BY
COT 20-NC
DT 20-NC
DT 20-NC
DT 20-NC
DT 20-NC
ALloi
XX
ALloi
XX
Alloi
XX
Alloi
XX
ALloi
XX
ALloi
XX
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                            ર્
                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                            Alloiococcus ogene therapy;
                 Alloiococcus otitis
                                                                                         Alloiococcus otitis antigenic protein encoding
                                                                                                                            20-NOV-2003
                                                                                                                                                                                        ADB06077
                                                                                                                                                                                                                                                                     1374
                                                                                                                                                                                                                                                                                                                                   1314
                                                                                                                                                                                                                                                                                                                                                                1947
                                                                                                                                                                                                                                                                                                                                                                                                1254
                                                                                                                                                                                                                                                                                                                                                                                                                             1887
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGAC 1706
                                                                                                                                                                                        standard;
                                                                                                                                                                                                                                                                                                 GGACAGCTCGATCGCCATCCGCACCCTGCTGGTCAGGAACGGCCAGGTCAGTTGCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                          cgaccreaccarcercarcescarcerecreeceaeceaeceaeceaecerecer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTCGGATGGTTCGCCCTCAGCGGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCCGT 1646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCT 1406
                                                                                                                                                                                                                                                                   GGTCCGGGTGCTGCAAACCCCTGGAAGGGATGGCCGGGACAGCGTCCC
                                                                                                                                                                                                                                                                                                                                                             CGGCGGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGGAGTTCACCGAGACCGTGGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCGAGCCGACGCGCATCTACTGCGGCAGCCTGTTCTACCTCGACGTGCGCGGCGAGAT 1253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATCCGGGGACGGCTGCGGCCCGGCACCAGCACCGCCTGCGTACGCGCCGCCTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGGGTACCGGAGCTGTTCGCCCTGGAAAGCTATCCCAACGTGCATCACCTGGTGAGCAG 1073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCTGATGATCGTCGACCTGCTGCGCAACGACATCGGACGCAGTTGCCAACCTGGCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGAGGAGACATGGCGCTGGCGGCGTCGCTGCTGGCCAGCCCCAAGGACCGCGCGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGAGGACGACCAGCCCCCGCCGACCCTGGCCGGGAGAAGGACCGGGCCGAGAA 1580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGACGGCGGCGTCGAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGGCGCGCACCGC 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTGCGACTGGCCGACGGCGCGATCCTCAGCCTGTCGCCGGAGCGCTTCCTCAAGCT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCGAGTTCCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGG 1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCGCCGTGGCCGATCGCGCCCTGCCGCGACGCCTGCCCGACGCCGTTCTCCGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGCGCGCGCCACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGAT 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCGGCTCGATCACCGGCGCGCCGAAGATTCGCGCCATGCAGATCATCGACGAACTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGACGGAGCATCAGCGCATCCGACTATCGGCAGGCGATCCGCCGCATCCAGGACTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAGGCAGGCGACTGCTACCAGGTGAACTATAGCCAGCGCTTCCAGGCCGCTTGCAGCGG
                                             otitidis; antigenic protein;
; Gram-positive bacterium; in
                                                                                                                        (first entry)
                                                                                                                                                                                        DNA;
                                                                                                                                                                                       2046
                                                                                                                                                                                        ВP
                                                          immunogenic; immunisation;
                                                                                         DNA SEQ
                                                                                         日
                                                                                           NO:17
                                                                                                                                                                                                                                                                   1423
                                                                                                                                                                                                                                                                                                                                                                                                                          1946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1013
                                                                                                                                                                                                                                                                                                                                                                                            1313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        893
```

Ś 밁

238 GTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCCGGGCCCCG

GAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGGTCCTCGGC CTATTGGATCTCGACTTTGATAATGTCATTATTTCACCGGGGCCCGGTAGTCCGGACCGG cccercea---egacriceacegarcerererereccegegececegegaececegaeceg GGGAAGGTCACAGGGAAAGAGCCCATGGTGATAAAAATGACCAGATGACCTACCAAGAA 141

ICGGCTTGTGCCGGCAAGTAATTGAAAAGCTTGACAAGCCTATCTTTGGC

261 237 201 177

밁 Ś 밁 S 밁

121

61 22

GGCGAGGCCACCGGGCAACCCCCCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTG

ATGAAGTCACTCATTATCGATAACTATGATTCTTATACTTACAACTTATACCAGCTTATT

81

```
CC an isolated polypeptide that is encoded by the polynucleotide (I); (2) an CC expression vector comprising the novel isolated polynucleotide (I); (3) an CC complement, degenerate variant or fragment; (3) a genetically engineered CC host cell, transfected, transformed or infected with the vector of (2); (6) an antibody specific for the polypeptide of (1); (5) an immunogenic CC composition comprising the polypeptide, its complement, biological CC composition or fragment, or the polypeptide, its complement, biological CC equivalent or fragment, or the polypeptide that is comprising the CC expression vector; (6) a pharmaceutical composition comprising an array of the polypeptides of (1) their biological equivalent or fragment; (8) immunising against Alloiococcus otitidis by administering to a host the cortitidis in the biological sample; (10) a kit comprising a container CC containing the novel polynucleotide, its degenerate variant or fragment, CC or the antibody of (4); and (11) producing a polypeptide by culturing the CC genetically engineered host cell under conditions suitable to produce the CC polynucleotides, polypeptides, antibodiés and compositions of the present cCC critidis. The present sequence encodes an Alloiococcus otitidis antigen from the present invention.
                                                Query Match
Best Local S
Matches 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present invention describes an isolated polynucleotide (I) of Alloiococcus otitidis genomic DNA, which encodes an antigenic protein. Alloiococcus otitidis is a Gram-positive bacterium. Also described: (1)
                                                                                                                      Sequence 2046 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New Alloiococcus otitidis polynucleotides and polypeptides, useful for treating and diagnosing diseases, drug screening assays and monitoring effects during drug clinical trials.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-NOV-2001; 2001US-0333777P
18-NOV-2002; 2002US-0426742P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25-NOV-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO2003048304-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (AMHP ) WYETH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12-JUN-2003
                                                  , 666
                                                                   Similarity
ATGCGCACGCTTCTGATCGACCAACTACGACTCGTTCACCCCACAACCTGTTCCAGTACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ĽD,
                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2002WO-US036123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HOLDINGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NO 17; 1019pp;
                                                                                                                      597 A; 470 C; 493 G;
                                                                 13.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JC,
                                             Score 267.2; DE Pred. No. 9.6e-20; Mismatches 9
                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Russell DP,
                                                                                                                      486 T; 0 U; 0 Other;
                                                        DB .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zagursky
                                                963;
                                                                                  9;
                                              Indels
                                                                                Length 2046;
                                              84;
                                              Gaps
```

of.

1551

1611

```
1150
                                                                                                                                                                                                                     1192
                                                                                                                                                                                                                                                                                                                                                1075
                                                                                                                                                                                                                                                                                                                                                                                          1072
                                                                                                                                                                                                                                                                                                                                                                                                                                  1015
                                            1312
                                                                                        1207
                                                                                                                                 1252
                                                                                                                                                                                                                                                               1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACTATAACCAATCCAGCCTTTATTATGAAAAAGTTCCGGGAACTAGGGACAGCCAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCCGGCGAGGACGTCTTCCGGGGC
                                                                                                              TACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATC
                                                                                                                                                                                                                                                               ecctos de la consecue                                                                                                                                                                                                                                                                                                                                                                                                                                 TTCCTCTTCGCCGACCGCGCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTGCTGCTGCTGCTTATTATTGTGACCGGGCCTTGGTCTATGACCACCAGGAAGAGACGACCTTTACTTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATGAGCCGGCCTTGCCCTTTGACCTTTCAGCTAGGCTATATTGGCTATATCGGCTATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAA---GCTTCCAGACTGACATCTTTTCTTACTTAAAAGCCAACCGACCAAATGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGACGCGCGCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTAÀAATÁCGATGTCGACCAAAAAGAAGTGAAAAAACAAGATAGCCÁGTCCGCAGCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCACCTACCGCGTCGCCGACGGCGTCTCCGTCCGCGGCTCCGACGGCACCACGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGCCTGGCTTGTCACGGTTTTCCATCTTTGGCATGGCTGGACCAAAGCGGGGCCACACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCGAAGGCGCCTCGCGCTTCCTTCCTCGGCGACGACGGCCCGGCTCGCCGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCTACGATCAATTGGCCAAAATTGATGACCAAGTACTTTGGCTCGACTCCAGCAAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGACTCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AĀĀĀTGĀTĠĠĀĀĀČTT---------TATĠĠČCTTĠTĠĊĊĀGĠAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGCGCCACGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCCCCATGCATGGTCGGCAGAGTTCGGTCTACCATAATGGGAAAAATATCTTTGACGGC
                          TGCCTGACCAACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCG
                                                                                        TATATCAAAGACATTGAAACCATCCAAGACCTGATCAAGGCTGGGGAAAGTTATGAAGTT
                                                                                                                                                                                                                                                                                                    acceneacedeceneges and acceneacy and acceneacy acceneacy and acceneacy acceneacy acceneacy acceneacy acceneacy
                                                                                                                                                                                                                                                                                                                                                   TCCTACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTTGCCTGGGCCACCAGGGCATTTATTATTATAACGGTGGCAACTTAGTGGGGGCTGAT
      TGCTTGACCAACCGGCTGGATATTGAGGGTCAGATTGATGGCCTCGCTTATTACAAACAC
                                                                                                                                                                                                                                                                                                                                                   GGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                  1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1014
      1326
                                            1371
                                                                                                                                                                           1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             654
RESULT 15

ADB12064 00/c

WP Sequence split into
WP ADB12064 00

WP ADB12064 01

WP ADB12064 03

WP ADB12064 05

WP ADB12064 05

WP ADB12064 06

WP ADB12064 06

WP ADB12064 06

WP ADB12064 10

WP ADB12064 11

WP ADB12064 15

WP ADB12064 15

WP ADB12064 15

WP ADB12064 15

WP ADB12064 17

WP ADB12064 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              성 음 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       유 성 유 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유상유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGGCGCTCGGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAAAAAGAACCCTGGAAATTATTGATGACTTAGAAGCAGTTCCCAGAGGGATCTATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGCGTCTACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCAGCACCGCCTGCGTACGCGCCCCCTTCCCCGGGCGGCTCCATGACCGGCGCGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGACCTACTCCACCCTCCACCAGCTGGTTACCACGGTTCAGGCCGGGTCAAAGAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGACCTACGCGCCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACCTGCCCCGGCTCTTCGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACCTGGCCGGCAGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATCCTGAAGAAGAGTTTGATGAAGTTGTTTTAAAAAGCTAAGGGGGCCTTGTCCGCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGTGTGGTGGAAGCAGACAAGGCAAGCATCGGCCTGGGGGGGTGCGATTGTCATGCTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGACTATTGGCTTTTTAGCCAACAATTCCACTATAGACTTCAACATCGTCATCCGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTAGATGTGGTTGAAGTGTTÁGAAAACACCTTCCCGGGCGGGCGGTCCATGACTGGGGCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCATCAAGGGGACGGTCAGACGGGGGACAGATGACCAAGAAGACCAAGACTTGATAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTTCCTCTTCCATGGAGCGTTTTATTAATGTCGACAAGGACCGGGTTGTGACCACTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                  into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2037
                                                                                                                                                                                                                                                                                                                                                                                                                                    18
                      800001
900001
1000001
11000001
1200001
1300001
1400001
1500001
1600001
                                                                                                                                                                                                                                                                                                                                                                                                          fragments
Begin
                                                                                                                                                                                                                                                               100001
200001
300001
400001
500001
                                                                                                                                                                                                                                       700001
00001 81000
00001 101000
00001 1110000
00001 1210000
00001 1310000
00001 1410000
00001 1510000
00001 1610000
00001 1754382 BP.
                                                                                                                                                                                                                                                             LOCUS
End
110000
210000
310000
410000
510000
610000
                                                                                                                                                                                                                                                                                                                                                                                                                                    ADB12064
                                                                                                                                                                                                                                                                                                                                                                                                                                    Accession
```

ち 음 ち

중 유

Ś

망

δ

밁

δ

밁

ð

밁

밁

성 음 성

8 8 8 8

음 성 음 성 음

S

밁

В

δ

망

음 성

중 유

55 B

Adb12064

2031

1926

1971 1866 1911 1806 1851

```
Ś
                                             밁
                                                                        ঠ
                                                                                                                                                                    CC Alloicoccus otitidis genemic DNA, which encodes an antigenic protein.
CC Alloicoccus otitidis is a Gram-positive bacterium. Also described: (1)
CC an isolated polypeptide that is encodes by the polymucleotide (1); (2) an isolated polypeptide that is encoded by the polymucleotide (1); (2) an isolated polypeptide that is encoded by the polymucleotide (1); its complement, degenerate variant or fragment; (3) a genetically engineered host cell, transfected, transformed or infected with the vector of (2); (2) an antibody specific for the polypeptide of (1); (5) an immunogenic composition comprising the polypeptide, its complement, biological equivalent or fragment, or the polypeptide that is comprised in the CC expression vector; (6) a pharmaceutical composition comprising the composition comprising the polypeptide of (1), their biological equivalent or fragment; (8) of the polypeptides of (1), their biological equivalent or fragment; (8) immunising against Alloicoccus otitidis by administering to a host the containing the novel polymucleotide, its degenerate variant or fragment; (8) of the antibody of (4); and (11) producing a polypeptide by culturing the containing the novel polymucleotide, its degenerate variant or fragment; (7) appetide from the culture. (1) can be used in gene therapy. The colympeptide from the culture. (1) can be used in gene therapy. The colympeptide from the culture of can be used in gene therapy. The colympeptide are useful for expressing and detecting Alloicoccus otitidis. The present seguence repressing and detecting Alloicoccus cotitidis. The present seguence represents the entire genome of cotitidis, which is given in the exemplification of the present cotitidis, which is given in the exemplification of the
                                                                                                        Query Match
Best Local S
Matches 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 treating and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New Alloiococcus otitidis polynucleotides and treating and diagnosing diseases, drug screeni effects during drug clinical trials.
                                                                                                                                                                  Sequence
                                                                                                                                                                                                present invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention describes an isolated polynucleotide (I)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29-NOV-2001; 2001US-0333777P
18-NOV-2002; 2002US-0426742P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alloiococcus otitidis; antigenic protein; immunogenic; immunisation; gene therapy; Gram-positive bacterium; infection; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alloiococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25-NOV-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO2003048304-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (AMHP ) WYETH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADB12064;
                                                                                                                      Local Similarity
                                               7807
                 61
GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                  1754382 BP;
                                            ATGAAGTCACTCATTATCGATAACTATGATTCTTATACTTACAACTTATACCAGCTTATT
                                                                ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 6651; 1019pp; English
                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2002WO-US036123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      otitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             otitis entire genome sequence SEQ ID NO:6651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HOLDINGS CORP
                                                                                                                    13.0%;
                                                                                                                                                               484756A; 391265C; 387369G; 490992T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JC,
                                                                                                      Score 267.2; 1
Pred. No. 4.3e
0; Mismatches
                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Russell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      des and polypeptides, useful for screening assays and monitoring
                                                                                                                      4.3e-26;
                                                                                                                                    DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zagursky
                                                                                                      Indels
                                                                                                                                 Length
                                                                                                                                    110000
                                                                                                                                                               OU; OOther,
                                                                                                   84; Gaps
                                          7748
                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         e
f
                    S
                                                        밁
                                                                                   Ś
                                                                                                                 문
                                                                                                                                            8
                                                                                                                                                                               밁
                                                                                                                                                                                                        S
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
```

```
7051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7111 GAGCCTGGCTTGTCACGGTTTTCCATCTTTGGCATGGCTGGACCAAAGCGGGGCCACACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7327 ACCAAGCCCATCTATGGGGTCCAATTCCACCCCGAATCCATTGCCACCCAGTATGGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7747 GGGAAGGTCACAGGGAAAGAGCCCATGGTGATAAAAATGACCAGATGACCTACCAAGAA 7688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178
                                                                                                                                                                                                                                                                                                                                                                                 TATGAGCCGGCCTTGCCCTTTGACTTTCAGCTAGGCTATATTGGCTATATCGGCTATGAG
ACCCTCACCGGCCTGGCCGCCGCCCGGCCGAGCCGACCCCGCCATGGTCTTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTAAAATACGATGTCGACCAAAAAGAAGTGAAAAAACAAGATAGCCAGTCCGCAGCAGTT
                                                                                                        GCCCTCGACCGCCGGGGCCACGACGACGCCCCGCGCCTGGCTGCGGGAGACGGCCGAG
                                                                                                                                                             TTTACTTATTGTGACCGGGCCTTGGTCTATGACCACCAGGAAGAGAGACCTTTACTTCCTC
                                                                                                                                                                                               TTCCTCTTCGCCGACCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTG
                                                                                                                                                                                                                                                                      GTCAAAAAAAGATACAGTTCAAGTCCACAACAAGCACCAGTCACCCTATCCGGATGCCTAC
                                                                                                                                                                                                                                                                                                                GTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAA----GCTTCCAGACTGACATCTTTTCTTACTTAAAAGCCAACCGACCAAAATGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGACGCGCGCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCACCTACCGCGTCGCCGACGGCGTCGTCGTCCGCGGCTCCGACGGCACCACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCGAAGGCGCCTCGCGCTTCTCCTTCGGCGACGACGCCGGCCCGCTCGCCGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACTATAACCAATCCAGCCTTTATTATGAAAAAGTTCCGGGAACTAGGGACAGCCAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGACTCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGCGCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGAAGCCGCTGTGGGGCGTCCAGTTCCAC¢CGGAGTCCATCGGCAGCGACTTCGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTTGCCTGGGCCACCAGGGCATTTATTATTATAACGGTGGCAACTTAGTGGGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCTACGATCAATTGGCCAAAATTGATGACCAAGTACTTTGGCTCGACTCCAGCAAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGAATATTCAAATCGATGCCAAAACCGATGATGGAATTGTCATGGCCCTGTCCCACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCCCCATGCATGGTCGGCAGAGTTCGGTCTACCATAATGGGAAAAATATCTTTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGG---CCGCCACCGACCTCCCC 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACAAGGACTTCGGCTTGTGCCGGCAAGTAATTGAAAAGCTTGACAAGCCTATCTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTATTGGATCTCGACTTTGATAATGTCATTATTTCACCGGGGCCCGGTAGTCCGGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCGTCGA----GGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---TATGGCCTTGTGCCAGGAC
                                                     -GGATGAC
                                                                                                                                                           6755
                                                     6740
                                                                                                                                                                                                                   1071
                                                                                                                                                                                                                                                                      6815
                                                                                                                                                                                                                                                                                                                         1011
                                                                                                                                                                                                                                                                                                                                                                                 6875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       177
                                                                                                                                                                                                                                                                                                                                                                                                                                       954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7568
```

S

```
Search completed: October Job time : 1264.11 secs
                                                                                                                                                                                                                                                                                                                                        5902
                                                                                                                                                                                                                                                                                                                                                                                                                     1972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1192
                                                                                                                                                                                                                                                      2032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1372
                                                                                                                                                                        5842 CÁAGCC 5837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGCGTCTACTCC 1851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCAGCACCGCCGCCTGCGTACGCGCCCCCCTCCCCGGCGCGCTCCATGACCGGCGCGCCC 1791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACCTGGCCGGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGC 1611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACGGC 2037
                                                                                                                                                                                                                                                                                                                                                                                                             GACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAAGGCCCGCGCCCATGGTCACCGCCCTC 2031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCGTGCTGGCCGACGGCCGAGGCGGAGTTCGGCGTGTCGCCTCTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGGCGCTCGGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAAAAAAGAACCCTGGAAATTATTGATGACTTAGAAGCAGTTCCCAGAGGGATCTATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ĠĀĠĀĊĊŦĀĊŦĊĊĀĊĊĊŦĊĊĀĊĊĀĠĊŦĠĠŦŦĀĊĊĀĊĠĠŦŦŦCĀĠĠĊĊĠĠĠŦĊĀĀĀĠĀĀĠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGACCTACGCGCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTG 1671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCCTCCGCAGTGAAGAGAAAACCAAGGCAGAAAACCTGATGATTGTCGACCTCTTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGCGCCAGGAAAGTCCCGGTCAGTACTCTGCCTTTTTGCCTTTAGATGATTTTCAAGTT 6443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGCGCCCATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCTTGACCAACCGGCTGGATATTGAGGGTCAGATTGATGGCCTCGCTTATTACAAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGCCTGACCAACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCGCTCTACTCCGCG 1371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATATCAAAGACATTGAAACCATCCAAGACCTGATCAAGGCTGGGGAAAGTTATGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGGGGAGTCGTACGAGATC 1311
                                                                                                                                                                                                                                                                                                                               GATCCTGAAGAAGAGTTTGATGAAGTTGTTTTAAAAGCTAAGGGGGCCTTGTCCGCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGTGTGGTGGAAGCAGGACAAGGCAAGCATCGGCCTGGGGGGGTGCGATTGTCATGCTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGACTATTGGCTTTTTAGCCAACAATTCCACTATAGACTTCAACATCGTCATCCGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCATCAAGGGGACGGTCAGACGGGGGACAGATGACCAAGAAGACCAAGAACTTGATAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTTCCTCTTCCATGGAGCGTTTTATTAATGTCGACAAGGACCGGGTTGTGACCACTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       creaececcreaececrearic creacearice contraction of the contraction of the creation of the contraction of the 
                                      4.
                                      2005,
                                           21:38:03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6503
```

음 성 음 성

밁 Ś 음 성

상유

B

Š

유

Вb

밁

5 B 5

В 5 밁 δ 밁 8 밁

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM nucleic -
                                                                                                                                                                                                                                                                                                                              O
                                                                                                                                                                                                                                                                                           O
                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                      0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95
              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
           365.4
365.4
272.2
272.2
272.2
272.2
268.4
268.4
268.4
268.4
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2
272.2

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-1
2061
1 atgcgcacgcttct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Issued_Patents_NA:*

1: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*

2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*

3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*

4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*

5: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*

6: /cgn2_6/ptodata/1/ina/backfiles1.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             October 4, 2005, 21:04:23; Search time 382.352 Seconds (without alignments) 8820.059 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1202784 seqs, 818138359 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
           Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 atgcgcacgcttctgatcga.....ccgtggcggcgcgcccgatga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Copyright
     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.6 (c) 1993 - 2005 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
US-08-765-907A-14
US-09-987-614A-14
US-09-987-614A-6
US-09-987-614A-6
US-09-987-614A-1
US-08-765-907A-1
US-08-765-907A-1
US-08-765-907A-1
US-08-510-646B-9
US-09-635-359B-9
US-09-635-359B-9
US-09-252-991A-13413
US-09-252-991A-13413
US-09-902-540-5760
US-09-902-540-8203
US-09-902-540-8203
US-09-902-540-845
US-09-902-540-845
US-09-902-540-845
US-09-902-540-845
US-09-103-840A-1
US-09-103-840A-1
US-09-252-991A-13332
US-09-252-991A-13332
US-09-252-991A-13332
US-09-252-991A-13332
US-09-252-991A-13332
US-09-252-991A-13021
US-09-252-991A-13021
US-09-105-537-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2405568
                                                       Sequence 14, Appl Sequence 6, Appli Sequence 6, Appli Sequence 1, Appli Sequence 1, Appli Sequence 9, Appli Sequence 9, Appli Sequence 9, Appli Sequence 9, Appli Sequence 13733, A Sequence 13733, A Sequence 1272, Appli Sequence 1272, Appli Sequence 1272, Appli Sequence 1272, Appli Sequence 8103, Appli Sequence 811, Appli Sequence 811, Appli Sequence 1, Appli Sequence 13332, A Sequence 13332, A Sequence 13021, Appli Seque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Description
     Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2061
                                Appli
```

Ş	B	ફ	B	Ś	B :	S	유 성	2 110	ÿ.	:	• ·		· •·	•• ••	٠. ٠.	·	•	- -		~ .	·· ··	su ;	REC					c)		ი	a	c	ı	
								Query Ma Best Loc Matches	ORGA: -08-76	LENG	SOFTW.	CURRE	FILE	TITLE	APPLI	APPLI	APPLI	APPLI	APPLI	APPLI	Patent	-08-76 Seguen	SULT 1		, <u>4</u> ,	43	42 42	40	ນ ເມ ເຄືອ ຈ	36	ս ս 5	3 U 3 Z	31	2 2 2	1
236 0	251 (176 (191	122 (62 0	71]	atch cal s 1356	NISM: S	TH: 222	ARE: Pa	NT FILI	REFEREN	OF IN	CANT:	CANT:	CANT:	CANT:	CANT:	CANT: E	No. 63	5-907A- ce 14,				•				•				147.6	
CGTCTGC	CGACACC	зедалсе	CCTGGCG	CGTCGAG	CGAGGTG	CGAGGCC	GCGCACG	imilarity	; ORGANISM: Streptomyces pristinaespi: US-08-765-907A-14	õ	itentIn	ING DATE	ICATION	/ENTION:	DUTRUC-	FAMECHO	BARRIER	COUZET	BAMAS-J	SLANC, V	352839 RMATION:	-14 Applica				٠; د	;	, i	ن 4، د	n in	. 8 . 7	 œ œ		NN	•
CTCGGCC	GACCTGG	GACTTCG	cceeece 	a	 AACGGCG	:ACCGGGC	CTGCTGA	39. Ty 64.	yces pr		Ver. 2.	1997 S: 17	eptogra	Strept	ROSSET,)N, Alai	E, Jean	Joel	ACQUES,	eroniqu		tion US			5392	15872	15872	2219	462	77536 77536	4403765 1584	627 1326	570	44377	;
- X	60	-GAA	ACT.	ACT	CCG	AAC(40 40	181		0	03	i min	ynti	Qi.	D C	-61	8	Na	ō		80/			ωı	<i>4</i> c	₩ (r	·ω·	. 4.	4.	♣	44	Α.	ุผม	•
GCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCC	ccGacaccageccTcagccgccgggTGaTcaccGaaTgGGaccTgccgcTcg	TCAGCCGCCGGGCGATCACCGACAC	CCTGGCGCCGGCGACTTCGACAACGTCGTCGTCTCACCCGGCCCCCGGCCACCCCGCCA	rceacecearcercerercecee	CCGAGGTGAACGGCCGCTCCGCTCGTCCGCCAACGACCACCCGCACCTGGCAGG	CCCCGTCGTCGTGCCCAACGACGC	TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG	Score 820; DB 3; Lengt Pred. No. 1.7e-126; 0; Mismatches 655; Ind	inaespiralis				genes 9/08/765 9072	nd Method For			aude		thalie			on US/08765907A		ALIGNMENTS	US-08-510-646B-1	US-09-091-609-3	US-09-105-537-1	US-08-510-646B-17	US-09-252-991A-13836	US-09-410-551B-1	US-09-103-840A-2 US-09-489-039A-497	US-09-252-991A-10862 US-09-252-991A-10823	US-09-902-540-8201	US-08-804-227C-7 US-08-804-198-1	•
AACCGTCGGCCTCGCCC 295	GGACCTGCCGCTGCTCG 310	cescrieceserceres 235	CCCCGCCACCCCCCA 250	ccccecaecccccacc 175		CGACTGGTCGCGGCTGC 121	CCTGTTCCAGTACATCG 61	ngth 2220; Indels 93; Gaps 5						Preparing Same By											Sequence 1, Appli	Sequence 3, Appli	Sequence 1, Appli Sequence 1, Appli	Sequence 17, Appl	Sequence 13836, A	Sequence 1, Appli	Sequence 2, Appli Sequence 497, App	Sequence 10862, A Sequence 10823, A	Sequence 1, Appril	Sequence 7, Appli Sequence 1, Appli	

```
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
밁
               Ś
                                   뫄
                                                          Ş
                                                                                   무
                                                                                                  Ş
                                                                                                                         멍
                                                                                                                                               Ş
                                                                                                                                                                         밁
                                                                                                                                                                                        Ş
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                            ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                              1187
                                                                                                                               1208
                                                                                                                                                                         1148
1373
                    1247
                                        1313
                                                                                    1253
                                                                                                         1127
                                                                                                                                                   1067
                                                                                                                                                                                               1007
                                                                                                                                                                                                                    1088
                                                                                                                                                                                                                                                              1028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                561
                                                                                                                                                                                                                                        947
                                                                                                                                                                                                                                                                                   887
                                                                                                                                                                                                                                                                                                         971
                                                                                                                                                                                                                                                                                                                              827
                                                                                                                                                                                                                                                                                                                                                    911
                                                                                                                                                                                                                                                                                                                                                                                              851
                                                                                                                                                                                                                                                                                                                                                                                                                                                            647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       431
                                                                                                                                                                                                                                                                                                                                                                        767
                                                                                                                                                                                                                                                                                                                                                                                                                  707
                                                                                                                                                                                                                                                                                                                                                                                                                                       791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      296
                                                                                                                                                                                                                                                            GGGTCCCCGTCGCCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG
                                                                                                                                                                                                                                                                                                       ACGAGCTCGAACCCCTCGCAGCGAGCGACGGGGTCGTCATGGGCCTGCGGCACCGCG
                                                                                                                                                                         CCGAACGCATACCCGCACCCGCACCCGCCCCCGCCCCCGCACCGGCACCGGCACCGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGAACCCTTTCACGGCCACCAGCGACATCCGCCACGACGGCAGGGCCTGTTCGCGA
CCCGCTACCGGGAACTGGTCGAGGAATGCCGCCGCCTGATCACCGACGGCGAGACCTACG
           ACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACG
                                                      CCGAGACCCTCACCGGCCTGGCCGTCCGCGCCCGGCCGAGCCGACCCCCGCCATGGTCT
                                                                                                                               TCCTGGCACTGAGCAGCACCCGACGGCCCGCCACCGCACCCGCC
                                                                                                                                             TGCTGGCCCTCGACGGCGCGACGACGACGGCGCCCCGCGCCTGGCTGCGGGAGACGG
                                                                                                                                                                                           CCGCGTTCCTCTTCGCCGACCGCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACC
                                                                                                                                                                                                                    GCTACGAGCTGAAGGCGGAGACCACCGGCGACCCGGCGCACCGGTCCCCGCACCGACG
                                                                                                                                                                                                                                                                                                                                                    GCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTGCGCGTCAAGGACGGTTCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                              GCCGCGTCGAGCCGGGCCTCGCCCGCCTTCACCTTCCTCGGCGCCCCGGCCCGGCCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                         GCTCCGTCGAAGGCGCCTCGCGCTTCTCCTTCCTCGGCGACGACCGCGCCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGACGCCGCGTTCACCGCCCTGTTCGCCGACGCCCCGGCCCGGTTCTGGCTCGACAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGTCCGCGCGGTGGGGGAGTACCGGCTGCATGTGCGCGAGGTCGCCTGCGTGCCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGATGCTCGCCAACTTCCGCGACCTGTCCCTGCGCGCGCCGGCCACCGCCCCCCCGCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGATCATGGCCAACTTCCGCGACCT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGACCTGCGCGCCACCGCCACACCGCCGACGGCAGCTGATGGCCGTCGCCCACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCTCCCCTCGCCGTTCACCGCCGTGCGCCTACCACTCCCTGGCCGCCACCGACCTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCAACACCGGCGAGGACGTCTTCCGGG
                                        TCACCCTGCTGCCCGACGACCAACTGCCCGCCCTGGACGTCCACTACCGCCACAGCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----cGCCCTCGCCCACCACGGGGCACGGCGCCACGGGCCACGGGCCACTCCC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCTCGCCGGCGCCGCCGTCGTCCACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---cetaceaactccacetecececeteacetectecee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1126
                  1306
                                                                                                                                                                                            1066
                                                                                                                                                                                                                                        1006
                                                                                                                                                                                                                                                              1087
                                                                                                                                                                                                                                                                                   946
                                       1372
                                                             1246
                                                                                                                                                                         1207
                                                                                                                                                                                                                  1147
                                                                                                                                                                                                                                                                                                        1027
                                                                                                                                                                                                                                                                                                                              886
                                                                                                                                                                                                                                                                                                                                                                        826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 430
                                                                                                                                                                                                                                                                                                                                                    970
                                                                                                                                                                                                                                                                                                                                                                                              910
                                                                                                                                                                                                                                                                                                                                                                                                                  766
                                                                                                                                                                                                                                                                                                                                                                                                                                       850
                                                                                                                                                                                                                                                                                                                                                                                                                                                            706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            370
```

Db 2153	Qy 2027	Db 2093	Qy 1967	Db 2033	Qy 1907	Db 1973	Qy 1847	Db 1913	Qy 1787	Db 1853	Qy 1727	Db 1793	Qy 1667	Db 1733	Qy 1607	Db 1673	Qy 1547	Db 1613	Qy 1487	Db 1553	Qy 1427	Db 1493	Qy 1367	Db 1433	Оу 1307
3 CCT 2156		3 TGTCCGACCCCGACGACGACGTCCGCGAAATGCTCCTCAAGGCGCAGACCACCCTCGCCG 2152	7 TCTCCGACCAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCG 2026	3 GCACCATCGTCGCCACCGAGGAGGCCGCCACCATCGGCGTGGGCGGCGCGTCGTCGCCC 2092			7 ACTCCGGGGCGCTCGGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCC 1906		7 CGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGCGTCT 1846	3 CCGACGTCTCCCGCCCCCGCGCGGGTACGGGCCGCCTTCCCCGGCGGTCGATGACCGGCG 1912		3 AGGTGGAGACCTACGCCACCGTCCACCAGCTCGTCAGCACGGTCCGCGGCCGGC		3 TCGCAACGACCTCGGCCAGGTCTGCGACATCGGCTCCACGTACCGGGCCTGTTCG 1792		3 AGGCCTCCCTCGCCGCGGCCGAGAAGGACCGCCAGCGAGAACCTGATGATCGTCGACCTGG 1732		3 CCAAACCCATCAAGGGCACCCGCCCCCGCGCGCGCCCGCC		3 CCGTGCTCAGCTCCTCACCCGAACGGTTCCTGCGCATCGGCGCGGACGGTTGGGCGGAGT 1612		3 GCGCCTGCGCACCGTCAGCCCCCCCCCCCCCTACCTACCT	7 CCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCTGCTCGAGTTCCCCGAACTGT 1426		7 AGATCTGCCTGACCAACATGGTCACCGCGCCCGACCGACGGCGACGGCCCTGCCGCTCTACT 1366

US-09-987-614A-14

Sequence 14, Application US/09987614A

Patent NO. 683382

GENERAL INFORMATION:
APPLICANT: BLANC, Veronique
APPLICANT: BLANCHE, Francis
APPLICANT: BLANCHE, Francis
APPLICANT: COUZET, Joe1
APPLICANT: DEBUSSCHE, Laurent
APPLICANT: DEBUSSCHE, Laurent
APPLICANT: PAWECHON, Alain
APPLICANT: PAWECHON, Alain
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method
TITLE OF INVENTION: NUMBER: US/09/987,614A

For

Preparing

Same By

```
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: US/08/765,90
PRIOR FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 14
LENGTH: 2220
TYPE: DNA
ORGANISM: Streptomyces pristinaespira
US-09-987-614A-14
                                           S
                                                                  밁
                                                                               5
                                                                                                  В
                                                                                                                    Ş
                                                                                                                                     문
                                                                                                                                                       र्
                                                                                                                                                                               밁
                                                                                                                                                                                            δ
                                                                                                                                                                                                               В
                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                     음 성
                                                                                                                                                                                                                                                                                                            ક
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
          S
                             밁
                                                                                                                                                                                                                                                                                         뮵
                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 39.8%;
Best Local Similarity 64.4%;
Matches 1356; Conservative
                                                                                                                                                                               611
                                                                                    647
                                                                                                                                           671
                                                                                                                                                                                                                     551
                                                                                                                                                                                                                                       476
                                                                                                                                                                                                                                                           491
           767
                             851
                                              707
                                                                  791
                                                                                                      731
                                                                                                                                                             561
                                                                                                                                                                                                                                                                                               431
                                                                                                                                                                                                                                                                                                                  356
                                                                                                                                                                                                                                                                                                                                    371
                                                                                                                                                                                                                                                                                                                                                      296
                                                                                                                                                                                                                                                                                                                                                                       311
                                                                                                                                                                                                                                                                                                                                                                                          236
                                                                                                                                                                                                                                                                                                                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                                                                                                                                  191
                                                                                                                                                                                                                                                                                                                                                                                                             251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N
                                                                                                                                                                                                                                                                                                                                                                     cceacacceaccieeccicaecceceerearcacceaareeeacciecceciecce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG
                                                                                                                                                                                                                                                                     ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGTCGTCATGGGCCCTGCGGCACCGCG
                                                                                                                                                                                                                                                                                                        GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCCACCGACCTCCCCG
                                                                                                                                                                                                                                                                                                                                              CGGAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGGCGAGGACGTCTTCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                         CCGTCGAG-----GACTTCGACGCGATCGTGTCCCCGGGCCCCGGCAGCCCGGCAGCCCGGCAGCCCGGCCAGCCAGCCGGCCAGCCAACGTCGTCGTCGTCTCACCCGGCCCCGGCCACCCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGAGGTGAACGGCGCCGCTCCGCTCGTCGTCGCAACGACGACACCCGCACCTGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGCCAACGACGCCGACTGGTCGCGGCTGC
                                                                                                                                          ACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCACC
                                                                                                                                                                                                                                                          CCGACCTGCGCGCCACCGCCCACACCGCCGACGGCAGCTGATGGCCGTCGCCCACCGCC
                                                                                                                                                                                                                                                                                              ACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCCG
                                                                                                                                                                                                                                                                                                                                   CCGAACCCTTTCACGGCCGCACCAGCGACATCCGCCACGACGGCCAGGGCCTGTTCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pristinaespiralis
                                                                                                                ----CGTACGAACTCCACGTGCGCGCGTCGACGTGCCGGACG
                                                                                                                                                     · CGCCCTCGCCCACCACCGGGCACGGCCCACGGGGCCGACTCCC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 820; DB 4; I
Pred. No. 1.7e-126;
D; Mismatches 655;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93;
          826
                                                                 850
                                                                                                                       646
                                                                                                                                                             604
                                                                                                                                                                                670
                                                                                                                                                                                                                    610
                                                                                                                                                                                                                                      535
                                                                                                                                                                                                                                                                                              490
                                                                                                                                                                                                                                                                                                                                                                       370
                                                                                                                                                                                                                                                                                                                                                                                                             310
                                                                                                                                                                                                                                                                                                                                                                                                                                                 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130
                             910
                                                                                                     790
                                                                                                                                         730
                                                                                                                                                                                                 560
            Ş
                                     음 성
                                                                                      5
                                                                                                            밁
                                                                                                                          Ś
                                                                                                                                            В
                                                                                                                                                                ঠ 음 ঠ
                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                 В
g
                                                                  문
                                                                                                                                                                                                                      뮹
                                                                                                                                                                                                                                                                  8 8
                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                    음 성
                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               장 유
1973
                                                                          1853
                                                                                                                                 1667
                                                                                                                                                                                       1673
                                                                                                                                                                                                                                               1487
                                                                                                                                                                                                                                                                                                                                            1433
                                                                                                                                                                     1607
                                                                                                                                                                                                          1547
                                                                                                                                                                                                                                                                                                                                                                               1373
                                                                                                                                                                                                                                                                                                                                                                                                                    1313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               887
          ACTCCGGGGCCTCGGATGGTTCGCCCTCAGCGGCGCCGACCTCAGCATCGTCATCC
                                              CGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGGCTCT
                                                                                   TCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCG
                                                                                                                                                                                      AGGCCTCCCTCGCCGCGGCCGAGAAGGACCGCAGCGAGAACCTGATGATCGTCGACCTGG
                                                                                                                                                                                                 GCGCCGACCTGGCCGGCCGGGAGAAAGGACCCGGGCCGAGAACCTGATGATCGTCGACCTGG
                                                                                                                                                                                                                            CCAAGCCCATCAAGGGGACCCGCCCCGGGGGGCGACCGCGGAGGAGGACGAGCGGCTCC
                                                                                                                                                                                                                                                                  AGATCTGCCTGACCAACATGGTCACCGCGCCGACCGAGGGGACGGCCCTGCCGCTCTACT
                                                                                                                                                                                                                                                                                                                                                                              CCGAGACCCTCACCGGCCTGGCCGTCCGCCGCCGACCCCCGCCATGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCTGGCCCTCGACCGCCGCGCCACGACGACGACGCGCCCCGCGCCTGGCGGGAGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTACGAGCTGAAGGCGGAGACCACCGGCGACCCCGCACCCGCACCCGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGAGACCCGCCGGCACCCTCTTCGACCACCTGGAACACGAACTGG---CCGCCC
                                     cceacercrecececececececececececerrececeecececeareaceece
                                                                                                               AGGTGGAGACCTACGCCACCGTCCACCAGCTCGTCAGCACGGTCCGCGGCCGCCTTGGCGG
                                                                                                                          AGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGC
                                                                                                                                                                                                                                                                                                                                            AGGTGTGCCTGACGAACATGCTCCGGGTGCCCGGCCGGATCGACCCGCCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGCCCTGCCCGCCACCGGCCTGCCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGTCCCCGTCGCCCCGAACTGCCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCACGACCCGGACGCGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                    TCACCCTGCTGCCCGACGACCAACTGCCCGCCCTGGACGTCCACTACCGCCACAGCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTACGAGACCAAGGCCGACAGCGGCGGGGGGAGGACGCCCACCGCGGGGAACTGCCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTGCGCGTCAAGGACGGTTCAGGCG
                  1906
                                     1972
                                                       1846
                                                                                                               1852
                                                                                                                                                                                                                            1672
                                                                                                                                                                                                                                                                                                                                                                                                 1306
                                                                         1912
                                                                                                                                                                     1666
                                                                                                                                                                                                         1606
                                                                                                                                                                                                                                              1546
                                                                                                                                                                                                                                                                  1612
                                                                                                                                                                                                                                                                                   1486
                                                                                                                                                                                                                                                                                                                                                             1366
                                                                                                                                                                                                                                                                                                                                                                               1432
                                                                                                                                                                                                                                                                                                                                                                                                                    1372
                                                                                                                                                                                                                                                                                                                                                                                                                                      1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      970
```

```
; APPLICANT: FAMECHON, Alain
; APPLICANT: DARIS, Jean-Marc
; APPLICANT: DUTRUC-ROSSET, Gilles
; TITLE OF INVENTION: Streptogramins And Method
; TITLE OF INVENTION: Mutasynthesis
; FILE REFERENCE: Streptogramin genes
; CURRENT APPLICATION NUMBER: US/08/765,907A
; CURRENT FILING DATE: 1997-03-20
; NUMBER OF SEQ ID NOS: 17
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 6
; ELENGTH: 4496
                                                                                     Ş
                                                                                                                                                                                 밁
                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
US-08-765-907A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
밁
                        Ş
                                                           В
                                                                                                                         멍
                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: BAMAS-JACQUES, Nathalie
APPLICANT: BLANCHE, Francis
APPLICANT: COUZET, Joel
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: DEBUSSCHE, Laurent
APPLICANT: FAMECHON, Alain
APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
APPLICANT: DUTRUC-ROSSET, Gilles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-765-907A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 6, Application Patent No. 6352839 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity Matches 899; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
ORGANISM: Streptomyces
                                                                                                                                                                                                                                                                                                              3088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1907
3388
                                                           3328
                                                                                                                         3268
                                                                                                                                                                                      3208
                                                                                                                                                                                                                                                  3148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2033
                              356
                                                                                          296
                                                                                                                                                       236
                                                                                                                                                                                                                     176
                                                                                                                                                                                                                                                                               122
                                                                                                                                                                                                                                                                                                                                                                                                        N
                                                                                                                                                                                                                                                                                                                                                                                          TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
                                                                                                                                                                                                                                                                                                              CCGAGGTGAACGGCGCCGCTCCGCTCGTCGCCAACGACGACACCCCGCACCTGGCAGG
                                                                                                                                                                                                                                                                                                                                                                          TGCGAACCCTGCTGATCGACACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCTCCCCTCGCCGTTCACCGCCGTGCCCTACCACTCCCTGGCCGCCACCGACCTCCCCG
                                                                                                                                            GCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGGTCGGCCTCGCCC
                                                                                                                                                                                      CCGACACCGACCTGGGCCTCAGCCGCCGGGTGATCACCGAATGGGACCTGCCGCTGCTCG
                                                                                                                                                                                                                GGGAACGGGACTTCGGAATCAGCCGCCGGCCGATCACCGACAGCGGCCTGCCCGTCCTCG
                                                                                                                                                                                                                                                                                                                                         TCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCGATGGTCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCCG
                                                           CCGAACCCTTTCACGGCCGCACCAGCGACATCCGCCACGACGGCCAGGGCCTGTTCGCGA
                                                                                                                         GGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCTCGCCGGCGCCGCCGTCGTCCACGCAC
                                                                                                                                                                                                                                                CCCTGGCGCCGGCGACTTCGACAACGTCGTCTCACCCGGCCCCGGCCACCCGCCA
                                                                                                                                                                                                                                                                            CCGTCGAG-----GACTTCGACGCGATCGTCGTCTCCCCGGGCCCGGCAGCCCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTCCGACCCCGACGACGACGACGACGACCCTCCAAGGCCCACACCCCTCGCCG
                                                                                        cegaacccarecaceecceecroroceaecrececacaccaceaecaceaccrorroceec
                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2030
                                                                                                                                                                                                                                                                                                                                                                                                                                                    22.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08765907A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 459; DB 3; I
Pred. No. 4.2e-67;
0; Mismatches 495;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Method
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          For Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 4496;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Same
                                                                                                                                                                                                                                                                                                                                                                                                                                       93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ву
                                                                                                                                                                                                                                                3207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1966
                                                                                                                                                                                     3267
                                                                                                                                                                                                                                                                               175
                                                                                                                                                                                                                                                                                                              3147
                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2152
                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                   5
                                                                        밁
                                                                                                 8
                                                                                                                                      밁
                                                                                                                                                            Ş
                                                                                                                                                                                                  B
                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                 4225
                                                                                                                                                                                                                                                                                                                           4165
                                                                                                                                                                    1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                      4045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTGCGCGTCAAGGACGGTTCAGGCG
              GCGCCCTGCGCACCGTCAGCCCCCCCCCTACGCCGCCTACCTGCAG
                                          ccececrececentcaecccercceraceececcrecreae
                                                                                                                                                                   ACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACG
                                                                                                                                                                                                                                cceaeacccrcacceeccreeccercececcceaecceaecceaecceccareercr
                                                                                                                                                                                                                                                                                                                                              TGCTGGCCTCGACCGCCGCGCCACGACGACGGCGCCCGCGCCCTGGCTGCGGGAGACGG
                                                                                                                                                                                                                                                                                                                                                                                          CCGCGTTCCTCTTCGCCGACCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTACGAGCTGAAGGCGGAGACCCACGGGGGACCCCGGCGCACCGGGTCCCCGCACCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGCCCTGCCCGCCACCGGCCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGTCCCCGTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGAGACCCGGCCGGCCACCCTCTTCGACCACCTGGAACACGAACTGG----CCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCACGACCCGGACGCGCCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cceaeraccreaccraccecerceceaecercercercercerceececeecraceeca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGCGTCGAGCCGGGCTCGCCCGCTTCACCTTCCTCGGCGCCCCGCCGGCCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTCCGTCCTCGAAGGCGCCTCGCGCTTCTCCTTCCTCGGCGACGACCGCGGCGCGCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGACGCCGCGTTCACCGCCCTGTTCGCCGACGCCCCGGCCCCGGTTCTGGCTCGACAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cceaagaegracececegecreccreccegegeaegeacaccacerreregeregacaeca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGATCATGGCCAACTTCCGCGACCT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGTCGTCATGGGCCTGCGGCACCGCG
                                                                          AGGTGTGCCTGACGAACATGCTCCGGGTGCCCGGCCGGATCGACCCGCCTCACCGCCTACC
                                                                                                     AGATCTGCCTGACCAACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACT 1366
                                                                                                                                       CCCGCTACCGGGAACTGGTCGAGGAATGCCGCCGCCTGATCACCGACGGCGAGACCTACG
                                                                                                                                                                                                                                                                  CCGACGCCGCCCGGACCCTCGCCACCACCGCCCCCCCGCCCCTTCACCCTGCTGCCCG
                                                                                                                                                                                                                                                                                                                            TCCTGGCACTGAGCAGCACCCGACGGCCGCCACCGCACCCGCCGCCGAACGCTGGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGTCCGCGCGGGGGGGGGGTACCGGCTGCATGTGCGCGAGGTCGCCTGCGTGCCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCTGCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         - cecccrceccaccaccaceecaceccaceaccaccaccacc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GTACGAACTCCACGTGCGCGCCGCGTCGACGTGCTGCCGGACG
                                                                                                                                                                                                     CGCCACAGCCTGC
                                             1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3807
                                                                           4449
                                                                                                                                       4389
                                                                                                                                                                    1306
                                                                                                                                                                                                     4329
                                                                                                                                                                                                                                   1246
                                                                                                                                                                                                                                                                  4284
                                                                                                                                                                                                                                                                                                                              4224
                                                                                                                                                                                                                                                                                                                                                                                          4164
                                                                                                                                                                                                                                                                                                                                                                                                                         1066
                                                                                                                                                                                                                                                                                                                                                                                                                                                      4104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 475
```

```
APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
FITTLE OF INVENTION: Streptogramins And Method For
FITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 6
LENGTH: 4496
TYPE: DNA
ORGANISM: Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-987-614A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: BLANC, Ve.
APPLICANT: TILBAUT,
APPLICANT: BLANS-JAC
APPLICANT: BLANCHE,
APPLICANT: COUZET,
APPLICANT: BARRIERE,
APPLICANT: DEBUSSCHI
APPLICANT: DEBUSSCHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 4
US-09-987-614A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 899; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 6, Application US/09987614A Patent No. 6833382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3148
                                                                                                                       3448
                                                                                                                                                                                          3388
                                                                                                                                                                                                                                                         3328
                                                                                                                                                                                                                                                                                                                              3268
                                                                                                                                                                                                                                                                                                                                                                                             3208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3088 CCGAGGTGAACGGCGCCGCTCCGCTCGTCGCCAACGACGACACCCCGCACCTGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3028 TGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTGG
                      536
                                                                                                                                                        416
                                                                                                                                                                                                                                                                                           296
                                                                                                                                                                                                                                                                                                                                                                                                                              176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                          GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCG
                                                                                                                                                                                                                                                                            CGGAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCGACACCCGGCGAGGACGTCTTCCGGG
                                                                                                                                                                                                                                                                                                                                                                                           CCGACACCGACCTGGGCCTCAGCCGCCGGGTGATCACCGAATGGGACCTGCCGCTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                               GGGAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGTCGAG------GACTTCGACGCGATCGTCGTGTCCCCGGGCCCCCGGCAGCCCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGTCGCAACGACGCCGACTGGTCGCCGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
 AGATCATGGCCAACTTCCGCGACCT---
                                                                                                                     CCGACCTGCGCGCCACCGCCCACACGGCGACGGCAGCTGATGGCCGTCGCCCACCGCC
                                                                                                                                                   ACGAGCTCGAACCCCTCGCCTGGAGGACGACGGCGTCGTCATGGGCCTGCGGCACCGCG
                                                                                                                                                                                      ACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCCG
                                                                                                                                                                                                                                                                                                                                               GCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCCTCGGCCTCGCCC
                                                  ACCTGCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCACC
                                                                                AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGG
                                                                                                                                                                                                                                                       CCGNACCCTTTCACGGCCGCACCAGCGACATCCGCCACGACGGCCAGGGCCTGTTCGCGA
                                                                                                                                                                                                                                                                                                                          GGGTGTGCCTGGGCCACCAGGCCCTGTGCCTCGCCGGCGCGCCGCCGTCGTCCACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCTGGCGCCGGGCGACTTCGACAACGTCGTCTCACCCGGCCCCGGCCACCCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THIBAUT, Denis
BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BLANCHE, Francis
COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 459; DB 4;
Pred. No. 4.2e-67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      495;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            For Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 4496;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ву
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                    3567
                                                                                                                                                                                      3447
                                                                                                                                                                                                                                                                                                                          3327
                                                                                                                                                                                                                                                                                                                                                                                           3267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                3207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3087
                                                                                                                                                     475
                                                                                                                                                                                                                        415
                                                                                                                                                                                                                                                                                         355
                                                                                                                                                                                                                                                                                                                                                            295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                   560
                                                                                                                                                                                                                                                                                                                                                                                                                             235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     υ
••
              ; Sequence 1, Application US/08765907A
patent No. 6352839
; GENERAL INFORMATION:
; APPLICANT: BLANC, Veronique
; APPLICANT: HIBAUT, Denis
; APPLICANT: HAMS-JACQUES, Nathalie
; APPLICANT: BLANCHE, Francis
                                                                                                                                  RESULT 5
US-08-765-907A-1
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                       1307
                                                                                                                                                                                                                                                                                                                                          4330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            707
                                                                                                                                                                                                      GCGCCCTGCGCACCGTCAGCCCCCCCCTACGCCGCCTACCTGCAG
                                                                                                                                                                                                                          CCGCGCTGCGCCCATCAGCCCCCGTCCCGTACGGCGCCCCTGCTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGCGTTCCTCTCGCCGACCGCGCCATCGCCCTCGACCACCACGAAGGCTGCTGCTACC
                                                                                                                                                                                                                                                                     AGGTGTGCCTGACGAACATGCTCCGGGTGCCCGGCCGGATCGACCCGCTCACCGCTACC
                                                                                                                                                                                                                                                                                         AGATCTGCCTGACCAACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACT
                                                                                                                                                                                                                                                                                                                                        CCCGCTACCGGGAACTGGTCGAGGAATGCCGCCTGATCACCGACGAGACCTACG
                                                                                                                                                                                                                                                                                                                                                                          ACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGGGATCCCCGAGGCGGCCGGCCGCGCGCGCGCGCGCACAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCTGGCACTGAGCAGCACCCGACGGCCCGCCACCCGCCGCCGAACGCTGGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCTGGCCCTCGACCGCCGGGCCACGACGACGACGCGCCCGCGCCCTGGCTGCGGGAGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGCCCTGCCCGCCACCGGCCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGTCCCCGTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGAGACCCGCCGGCCCGGCACCCTCTTCGACCACCTGGAACACGAACTGG----CCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCACGACCCGGACGCGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTCGCGCGTCAAGGACGGTTCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cceaetaccreaccracescreeceaeceaecercercreerceececececeaececae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCCGTCCTCGAAGGCGCCTCGCGCTTCTCCTTCCTCGGCGACGACCGCCGGCCCGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGACGCCGCTTCACCGCCCTGTTCGCCGACGCCCCGGCCCGGTTCTGGCTCGACAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGTCCGCGCGGTGGGGAGTACCGGCTGCATGTGCGCGAGGTCGCCTGCGTGCCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGAACGCATACCCGCACCCGCACCCGCCCCCCCGCCCCCCGCACCGGCACCGCCCCG
COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----cecccrocaccaccaccaceacaceccacegecaccaccccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GTACGAACTCCACGTGCGCGCGCGTCGACGTGCTGCCGGACG
                                                                                                                                                                                                                                      1413
                                                                                                                                                                                                                                                                     4449
                                                                                                                                                                                                                                                                                                         1366
                                                                                                                                                                                                                                                                                                                                                                                                                                           1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3687
```

826

766

706

646

밁 Ś 밁 S 밁 ঠ

밁 S 밁 S

Ś

ঠ

망

S 밁 Ś 밁 ঠ

문

```
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 1
LENGTH: 2888
TYPE: DNA
ORGANISM: Streptomyces pristinaespiralis
US-08-765-907A-1
   ~. ~. ~. ~.
                                                          RESULT 6
US-09-987-614A-1
                                                                                                                        밁
                                                                                                                                                  Ś
                                                                                                                                                                               밁
                                                                                                                                                                                                      ક
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
Sequence 1, Application Patent No. 6833382 GENERAL INFORMATION: APPLICANT: BLANC, Veron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: BARRIERE, Jean-Claude
APPLICANT: DEBUSSCHE, Laurent
APPLICANT: PAMECHON, Alain
APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins Ar
TITLE OF INVENTION: Mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 462; Conserv
                                                                                                                                                   2008
                                                                                                                                                                                                            1948
                                                                                                                                                                                                                                                                       1888
                                                                                                                                                                                                                                                                                                                                1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1408 CTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTTCCTCACGATCGGC
                                                                                                                                                                                                                                                                                                                                                                                          1768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1528 GAGGAGGAGCGAGCGCCGCCGGCCGGACCTGGCCGGGAGAAGAAGGACCGGGCCGAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1648
                                                                                                                                                                                 541
                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _
                                                                                                                                                                                                GGCGGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGGTTCACCGAGACCGTGGTAAAG
                                                                                                                                                                                                                                                                                                                          GAAGGCCCCCGGGGCGTCTACTCCGGGGCGCCTCGGATGGTTCGCCCTCAGCGGCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGCAGTTCCCCGGGGCCACCGTGCTCAGCTCCTCACCCGAACGGTTCCTGCGCATCGGC
                                                                                                                                          GCCCGCCCATGGTCACCGCCCT 2030
                                                                                                                                                                                                                                        GACCTCAGCATCGTCATCCGCACCATCGTCGCCACCGAGGAGGCCGCCACCATCGGCGTG
                                                                                                                                                                                                                                                            GACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGTC
                                                                                                                                                                                                                                                                                                 GGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                     GTCCGCGCCGCCTGGCGGCCGACGTCTCCCGCCCCCGCGCGTACGGGCCGCCTTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCCGGGGACGGCTGCGGCACCAGCACCGCCTGCGTACGCGCCCCTTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACGTACCGGGCCTGTTCGAGGTGGAGACCTACGCCACCGTCCACCAGCTCGTCAGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCCGTGCACCAGCTGGTGTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCAGGACGCCGCCGTCAAGGCCTCCCTCGCCGCGGCGAGAAGGACCGCAGCGAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGACGGCTGGGCGGAGTCCAAACCCATCAAGGGCACCCGCCCCCGCGGCGCCCCCC
                                                                                                                      GCGCAGACCACCCTCGCCGCCCT
                                                                                                                                                                               GGCGGCGCCGTCGTCGCCCTGTCCGACCCCCGACGACGAGGTCCGCGAAATGCTCCTCAAG
                                                                                                                                                                                                                                                                                                                                                          GCCGGGTCGATGACCGGCGCGCCAAGGTTCCGCACCATGCAGTTCATCGACCGGCTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGATGATCGTCGACCTGGTCCGCAACGACCTCGGCCAGGTCTGCGACATCGGCTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17.7%;
                                               US/09987614A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 365.4; DB
Pred. No. 1e-51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                      623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       And Method
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     For Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     βy
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1707
                                                                                                                                                                                                           2007
                                                                                                                                                                                                                                                                    1947
                                                                                                                                                                                                                                                                                                                                1887
                                                                                                                                                                                                                                                                                                                                                                                         1827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1527
                                                                                                                                                                               600
                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
APPLICANT: THIBAUT, Denis
APPLICANT: BAWAS-JACQUES, Nathalie
APPLICANT: BLANCHE, Francis
APPLICANT: BLANCHE, Francis
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: DEBUSSCHE, Laurent
APPLICANT: PAWECHON, Alain
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method For
TITLE OF INVENTION: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
FRIOR APPLICATION NUMBER: US/08/765,907
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SEQ ID NO 1
LENGTH: 2888
TYPE: DNA
CORGANISM: Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                         δ
                                                                                                                             밁
                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-987-614A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 462;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1708
                                                           2008
                                                                                                                                                                                                                                                                                                                           1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1408 CTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGGTTCCTCACGATCGGC
                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                GACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                    GAAGGCCCCCGGGGCGTCTACTCCGGGGCGCCTCGGATGGTTCGCCCTCAGCGGCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGACGGCGGCGTCGAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGGCGGCACCGCG
GCGCAGACCACCCTCGCCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCCGCGGCCTGGCGGCCGACGTCTCCCGCCCCCGCGGTACGGGCCGCCTTCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCCGGGGACGGCTGCGGCCCGGCACCAGCACCGCCTGCGTACGCGCCCTTCCCC
                                                       eccececcarecreaccecci 2030
                                                                                                                                                                                        GGCGGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAG
                                                                                                                                                                                                                                                             GACCTCAGCATCGTCATCCGCACCATCGTCGCCACCGAGGAGGCCGCCACCATCGGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                 AAGGGCCCGCGCGCGTGTACTCGGGCGCGCTGGGCTACTTCGCCCTCAGCGGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCGGGTCGATGACCGGCGCGCCCAAGGTCCGCACCATGCAGTTCATCGACCGGCTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACGTACCGGGCCTGTTCGAGGTGGAGACCTACGCCACCGTCCACCAGCTCGTCAGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGATGATCGTCGACCTGGTCCGCAACGACCTCGGCCAGGTCTGCGACATCGGCTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCAGGACGCCGCCGTCAAGGCCTCCCTCGCCGCGGCCGAGAAGGACCGCAGCGAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         санастиней в поставование в
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17.7%;
74.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 365.4; DB 4; Pred. No. 1e-51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       For
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 2888;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                           1947
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1647
                                                                                                                                                                                           2007
                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1467
                                                                                                                             600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
ş
                                               밁
                                                                          Ś
                                                                                                                                                             ; NAME/KEY: CDS
; LOCATION: 61..645
; OTHER INFORMATION:
US-08-403-852D-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-403-852D-9
                                                                                                                   Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 9, Application Patent No. 5891695
                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/403,852D
FILING DATE: 10-MAY-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/FR 93/00923
FILING DATE: 25-SEP-1993
PRIOR APPLICATION DATA:
APPLICATION UNMBER: FR 92/11441
FILING DATE: 25-SEP-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (202) 408-4400 INFORMATION FOR SEQ ID NO: 9: SEQUENCE CHARACTERISTICS: LENGTH: 645 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: ITTLE OF INVENTION: ITTLE OF INVENTION: ON NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                              HYPOTHETICAL: I
                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 0.88
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                  ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                         MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                 ORGANISM: S.pristinaespiralis
                                                                                                                                                                                                                                                                                                                   STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
STREET: 1
                                                                                                                                                                                                                                                                                                            POLOGY:
                                                                                                        392;
                    62
                                               71
                                                                          N
                                                                                                      Similarity 68. 92; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20005-3315
                                                                                                                                                                                                                                                                                                                                    nucleic acid
GCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGTCGACGACGACGCCGACTGGTCGCCGCCGTCGC
                                                                    TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
                                            TGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/08403852D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E: Finnegan, He
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Debussche, Laurent

De Crecy-Lagard, Valerie

De Crecy-Lagard, Valerie

VENTION: Polypeptides Involved In The

VENTION: Biosynthesis Of Streptogramins, Nucleotide Sequences

VENTION: Coding For These Polypeptides And Their Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Jacques,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Crouzet,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Blanche, Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thibaut,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Blanc,
                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                            (202)
                                                                                                                                                                                                                                                                                           CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Veronique
                                                                                                                13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                           408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Monique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Denis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Patricia
                                                                                                                                                                          /product= "gene papA'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Henderson, Farabow,
t, N.W., Suite 700
                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                       03806.0054-00000
                                                                                                   Score 272.2; DB 2;
Pred. No. 2.2e-36;
0; Mismatches 173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Garrett & Dunner
                                                                                                                               Length 645;
                                                                                                     Indels
                                                                                                   6;
                                                                                                   Gaps
                 121
                                            130
                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                닭
```

```
RESULT 8
US-08-510-646B-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 9, Application US/08510646B Patent No. 6077699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: 10-MAY-
                                                                                                                                                                           ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: De Crecy-Lagard, Valerie
TITLE OF INVENTION: Polypeptides Involved in The
TITLE OF INVENTION: Biosynthesis Of Streptogramins,
TITLE OF INVENTION: Coding For These Polypeptides Ar
NUMBER OF SEQUENCES: 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                       SOFTWARE: PatentIn Rel
                                                                                                                                                                                                                                                                                                       STREET: 1300
CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                            APPLICATION NUMBER: FILING DATE: 03-AUG CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                   COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     536 AGATCATGGCCAACTTCCGCGACCTCGCCCT 566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              431 ACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTGCCGGCGACCGGCCAACTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131 CCGAGGTGAACGGCGCCGCTCCGCTCGTCGCAACGACGACACCCGCACCTGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGACCTGCGCGCCACCCCCACACCGCCGACGGGCAGCTGATGGCCGTCGCCCACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCCTGGCCGCCACCGACCTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCTCGCCGGCGCCGCCGTCGTCCACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGACACCGACCTGGGCCTCAGCCGCCGGGTGATCACCGAATGGGACCTGCCGCTCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCG 235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGATGCTCGCCAACTTCCGCGACCTGTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGAACCCTTTCACGGCCGCACCAGCGACATCCGCCACGACGGCCAGGGCCTGTTCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cegaacccarecaceecceeercroceaeerececacaceceecaeeaecacercroceee 355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGTCGAG-----GACTTCGACGCGATCGTCGTCGCCGGGCCCCGGCAGCCCCGACC 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAAACCGTCGGCCTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCTGGCGCGGGGGACTTCGACAACGTCGTCGTCTCACCCGGCCCCGGCCACCCCGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Jacques, Nathalie
Lacroix, Patricia
Thibaut, Denis
Zagorec, Monique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Debussche, Laurent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Crouzet, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Blanche,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Blanc, Veronique
                                                                                                                                                                                                                                                                                                                                             Finnegan, Henderson, Farabow, 00 I Street, N.W., Suite 700
                                                                                                 03-AUG-1995
                     10-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Francis
                                                                                                                                                             Release #1.0,
                                      US 08/403,852
                                                                                                                    US/08/510,646E
                                                                                                                                                             Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            641
                                                                                                                                                             #1.30
                                                                                                                                                                                                                                                                                                                                                                    Garrett & Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                s, Nucleotide Sequences
And Their Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          250
```

```
Ş
                                                             밁
                                                                                         Ś
                                                                                                                            밁
                                                                                                                                                    Ś
                                                                                                                                                                                         밁
                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-510-646B-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Meyers, Kenneth J.

REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 03806.0054-01000
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 408-4400
TELEFAX: (202) 408-4400
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 645 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HYPOTHETICAL: | ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
nes 392; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCATION: 61..645
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: S.pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: nucleic acid
STRANDEDNESS: doub
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 25-SEI
 611
                                                              551
                                                                                            476
                                                                                                                            491
                                                                                                                                                        416
                                                                                                                                                                                          431
                                                                                                                                                                                                                        356
                                                                                                                                                                                                                                                         371
                                                                                                                                                                                                                                                                                       296
                                                                                                                                                                                                                                                                                                                     311
                                                                                                                                                                                                                                                                                                                                                    236
                                                                                                                                                                                                                                                                                                                                                                                                                 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                 191
                                                                                                                                                                                                                                                                                                                                                                                  251 CCGACACCGACCTGGGCCTCAGCCGGCCGGGTGATCACCGAATGGGACCTGCCGCTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              131 CCGAGGTGAACGGCGCCTCCGCTCGTCGTCCGCAACGACGACGACCCCGCACCTGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N
                                                                                                                                                                                                                                                                                                                                                   ecercreccreeecaccaeecareecececeaecrerreeeceaaccereeecece
                                                                                                                                                                                                                                                                                                                                                                                                         GGGAACGGGACTTCGGAATCAGCCGCCGGCGATCACCGACAGCGGCCTGCCCCGTCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGAGGCCACCGGGCAACCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
 GGATGCTCGCCAACTTCCGCGACCTGTCCCT
                                                                                                                            CCGACCTGCGCGCACCGCCCACACCGCCGACGGGCAGCTGATGGCCGTCGCCCACCGCC
                                                                                                                                                        ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGTCGTCATGGGCCTGCGGCACCGCG 475
                                                                                                                                                                                         ACATCCCCTCCCCGCTGACCGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCCG
                                                                                                                                                                                                                        GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCG
                                                                                                                                                                                                                                                                                    cegaacccarecacegecegercreceaeerecegecacecegegaegacercrrecege 355
                                                                                                                                                                                                                                                                                                                      GGGTGTGCCTGGGCCACCAGGCCCTGTGCCTCGCCGGCGGCCGCCGTCGTCCACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCTGGCGCCGGCCACTTCGACAACGTCGTCTCACCCGGCCCCGGCCACCCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTGG
                             AGATCATGGCCAACTTCCGCGACCTCGCCCT 566
                                                             ACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCACC
                                                                                            AGAAGCCGCTGTGGGGCCTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG 535
                                                                                                                                                                                                                                                        CCGAACCCTTTCACGGCCGCCACCAGCGACCCCCCCCGCGACGGGCCAGGGCCTGTTCGCGA 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product= "gene papA'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FR 92/11441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PCT/FR 93/00923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 272.2; DB 3;
Pred. No. 2.2e-36;
0; Mismatches 173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                         490
                                                                                                                                                                                                                        415
                                                                                                                                                                                                                                                                                                                      370
                                                                                                                                                                                                                                                                                                                                                    295
                                                                                                                                                                                                                                                                                                                                                                                  310
                                                                                                                                                                                                                                                                                                                                                                                                                235
                                                                                                                                                                                                                                                                                                                                                                                                                                               250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                             610
```

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 9
US-09-231-818-9
                                                                                                          US-09-231-818-9
                                         Query Match
Best Local S
Matches 392
                                                                                                                                                                                                                                                                                                                              FILING DATE: 25-SEP-192
ATTORNEY/AGENT INFORMATION:
NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 0380
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 408-4400
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 9, Application US/09231818
Patent No. 6171846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ve
CURRENT APPLICATION DATA:
APPLICATION UMBER: US/09/231,818
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/
FILING DATE: 10-MAY-1995
APPLICATION NUMBER: PCT/FR
FILING DATE: 25-SEP-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: FR 92/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                     ORGANISM: S.pristinaespiralis FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                        ORIGINAL SOURCE:
                                                                                                                                                                                                                                                 MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                       ANTI-SENSE:
                                                                                                                                                                                                                                  HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
STREET: 13
                                                                                                                       NAME/KEY: CDS
LOCATION: 61.645
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Washington
                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                 TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                  ENGTH:
                                           392;
         N
                                                         Similarity
TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E: Finnegan, Henderson, Farabow, 1300 I Street, N.W., Suite 700
                                                                                                                                                                                                                                                                                                                  645 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Debussche, Laurent
De Crecy-Lagard, Valerie
De Crecy-Lagard, Valerie
IVENTION: Polypeptides Involved In The
IVENTION: Biosynthesis Of Streptogramins, Nucleotide Sequences
IVENTION: Coding For These Polypeptides And Their Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lacroix, Patricia
Thibaut, Denis
Zagorec, Monique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Jacques, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Blanche, Francis
Crouzet, Joel
                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Blanc,
                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                      CDNA
                                                                                                                                                                                                                                                                                  double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Veronique
                                                        13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PCT/FR 93/00923
                                                                                                                       /product= "gene papA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FR 92/11441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08/403,852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US/09/231,818
                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                03806.0054-00000
                                         Score 272.2; DB 3;
Pred. No. 2.2e-36;
0; Mismatches 173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Garrett & Dunner
                                           Indels
                                                                        Length
                                                                          645;
                                           6;
                                           Gaps
             61
```

멍

71

TGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTGG

```
RESULT 10
US-09-635-359B-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 9, Application US/09635359B
Patent No. 6670157
GENERAL INFORMATION:
APPLICANT: Blanc, Veronique
COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Vers
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/635,359B
FILING DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US 09/231,818
                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, He
STREET: 1300 I Street,
CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                        TITLE OF
                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                      STATE: D.C.
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGATGCTCGCCAACTTCCGCGACCTGTCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCTACTCCCTGGCCGCCACCGACCTCCCCG 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGATCATGGCCAACTTCCGCGACCTCGCCCT 566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGAGCTCGAACCCCTCGCCTCGACGACCGACGGGGTCGTCATGGGCCTGCGGCACCGCG 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGAACCCATGCACGGCCGGGTCTCCCGAGGTGCGGCACACCGGCGACGACGTCTTCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCCGTCGGCCTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccGACACCGACCTGGGCCTCAGCCGCCGGGTGATCACCGAATGGGACCTGCCGCTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGAGGTGAACGGCGCCCCCCCCCCCCCCCCCCACCGCACCACCCCGCACCTGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCACC 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGACCTGCGCGCCACCGCCACACCGCCGACGGGCAGCTGATGGCCGTCGCCCACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGAACCCTTTCACGGCCGCACCAGCGACATCCGCCACGACGGGCAGGGCCTGTTCGCGA 430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGTGTGCCTGGGCCACCAGGCCCTGTGCCTCGCCGGCGCGCCGCCGTCCTCCACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGTCGAG-----GACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCCGACC 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCTGGCGCCGGCGACTTCGACAACGTCGTCGTCTCACCCGGCCCCGGCCACCCCGCCA
                                                                                                                                                                                                                                                                                                                         Debussche, Laurent
De Crecy-Lagard, Valerie
INVENTION: Polypeptides Involved In The
Biosynthesis Of Streptogramins,
Coding For These Polypeptides A
                                                                                                                                                                                        20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                      Jacques, Nathalie
Lacroix, Patricia
Thibaut, Denis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Blanche, Francis
Crouzet, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                         Zagorec, Monique
                                                                                                                                                                                                                                                        Henderson, Farabow, t, N.W., Suite 700
                                                                                            Version
                                                                                            #1.30
                                                                                                                                                                                                                                                                           Garrett & Dunner
                                                                                                                                                                                                                                                                                                                                And Their Use
                                                                                                                                                                                                                                                                                                                                             Nucleotide Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190
                                                                   á
                                   뫄
                                                                                                           뮍
                                                                                                                                       Ş
                                                                                                                                                                                 밁
                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; SEQUENCE DESCRIPTION: SEQ ID NO: 9: US-09-635-359B-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO: 9: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: nucleic acid
STRANDENNESS: double
TOPOLOGY: linear
MOLECULE TYPE: CDNA
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Meyers, Kenneth J.

REGISTRATION NUMBER: 25,146

REFERENCE/DOCKET NUMBER: 03806.0054-03000

TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                       371
                                                                                                                                                                                                                                                                                                                              311
536 AGATCATGGCCAACTTCCGCGACCTCGCCCT
                                                                                                           491
                                                                                                                                         416 ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCG
                                                                                                                                                                                 431
                                                                                                                                                                                                                     356
                                                                                                                                                                                                                                                                                         296
                                                                                                                                                                                                                                                                                                                                                                236
                                                                                                                                                                                                                                                                                                                                                                                                  251 CCGACACCGACCTGGGCCTCAGCCGGGTGATCACCGAATGGGACCTGCCGCTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                        176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131 CCGAGGTGAACGGCGCCGCTCCGCTCGTCGTCCGCAACGACGACACCCCGCACCTGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               392;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                 ACCTGCCCGCTTCGGCGTGCAGTTCCACCCGAATCGATCAGCAGCGAACACGGCCACC
                                                                                                       CCGACCTGCGCCACCGCCCACACCGCCGACGGGCAGCTGATGGCCGTCGCCCACCGCC
                                                                                                                                                                               ACATCCCCTCCCCGCTGACCGTCCCCCTACCACTCGCTGACCGTCCGGCAACTGCCCG
                                                                                                                                                                                                  GCCTCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCCACCGACCTCCCCG
                                                                                                                                                                                                                                                     CCGAACCCTTTCACGGCCGCACCAGCGACATCCGCCACGACGGCCAGGGCCTGTTCGCGA
                                                                                                                                                                                                                                                                                         CGGAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCCGGCGAGGACGTCTTCCGGG
                                                                                                                                                                                                                                                                                                                            GGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCCCGGCGGCGCCGCCGTCGTCCACGCAC
                                                                                                                                                                                                                                                                                                                                                     GCGTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                              GGGAACGGGACTTCGGAATCAGCCGCCGGGGGGATCACCGACAGCGGCCTGCCCGTCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGTCGAG-----GACTTCGACGCGATCGTCGTGTCCCGGGCCCGGCAGCCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCGAACCCTGCTGATCGACAACTACGACTGGTTCACCTACAACCTCTTCCAGATGCTGG
                                                                   AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCTGGCGCCGGCGACTTCGACAACGTCGTCGTCTCACCCGGCCCCGGCCACCCCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION: 61..645
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US 08/403,852
FILING DATE: 10-MAY-1995
APPLICATION NUMBER: PCT/FR 93/00923
FILING DATE: 25-SEP-1993
APPLICATION NUMBER: FR 92/11441
FILING DATE: 25-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: S.pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: (202) 408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
61..645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 272.2; 1
Pred. No. 2.2e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "gene papA"
566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .2e-36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                     535
                                   610
                                                                                                                                           475
                                                                                                                                                                               490
                                                                                                                                                                                                                 415
                                                                                                                                                                                                                                                     430
                                                                                                                                                                                                                                                                                                                            370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                         355
                                                                                                                                                                                                                                                                                                                                                            295
                                                                                                                                                                                                                                                                                                                                                                                                310
                                                                                                                                                                                                                                                                                                                                                                                                                                    235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130
```

밁 Ś

ঠ

뭐

á

밁 Ś Ş

밁

á

밁

Ś

밁 á 밁 δ

밁

밁

```
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 13413
ELENCTH: 1101
                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 11
US-09-252-991A-13413/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                      S
                                                      밁
                                                                                 S
                                                                                                                                       S
                                                                                                                                                                       뫄
                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
밁
                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Pseudomonas
US-09-252-991A-13413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 13413, Application US/09252991A Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION: APPLICANT: Marc J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                              1467
                                                                                                                                                                                                                                                                                                                                                                                                                                        1407
                            1827
                                                                                                                                            1707
                                                                                                                                                                                                     1647
                                                                                                                                                                                                                                                             1587
                                                                                                                                                                                                                                                                                                                      1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    742
                                                                                                                 385
                                                                                                                                                                          445
                                                                                                                                                                                                                                                                                                                                                   625
                                                                                                                                                                                                                                                                                                                                                                                                            682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           611
265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCGCCGTGGCCGATCGCGCCCTGCGCGAGGCCTGCCCGACGCCGTTCTCCGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACGGCCTGCCGCTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCT
                                                                                                                                                                                                                                                                                                                      GGAGGAGGACGAGCTCCGCGCCGACCTGGCCGGCCGGGAGAAGGACCGGGCCGAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                              GCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGG 1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAGGCAGGCGACTGCTACCAGGTGAACTATAGCCAGCGCTTCCAGGCCGCTTGCAGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGACGGAGCATCAGCGCATCCGACTATCGGCAGGCGATCCGCCGCATCCAGGACTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGCGCGCGCCACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGATGCTCGCCAACTTCCGCGACCTGTCCCT
ACCGAGCCGACGCGGCATCTACTGCGGCAGCCTGTTCTACCTCGACGTGCGCGGCGAGAT
                   GGAAGGCCCCCGGGGGCGTCTACTCCGGGGGGCCCTCGGATGGTTCGCCCTCAGCGGCGCCCC
                                                                                                                                          CCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGAC
                                                                                                                                                                                                                                                             CCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGT
                                                                                                                                                                                                                                                                                         CGAGGAGGACATGGCGCTGGCGGCGTCGCTGGCCAGCCCCCAAGGACCGCGCGGAAAA
                                                                                                                                                                                                                                                                                                                                                                              CCTGCGACTGGCCGACGGCGATCCTCAGCCTGTCGCCGGAGCGCTTCCTCAAGCT---
                                                       CGGCGGCTCGATCACCGGCGCGCGAAGATTCGCGCCATGCAGATCATCGACGAACTGGA
                                                                                  CGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGA
                                                                                                                 CGTCACCGGCGAACTGGCGCCGGGCAAGGACGCCCTCGACCTGCTGGAAGGCAGCTTCCC
                                                                                                                                                                                                                                                                                                                                                    CCTGATGATCGTCGACCTGCTGCGCAACGACATCGGACGCAGTTGCCAACCTGGCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 268.4; DB 4;
Pred. No. 9.2e-36;
0; Mismatches 341;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                           1886
                                                                                    1826
                                                                                                                                                                                                                                                             1646
                                                                                                                                                                                                                                                                                                                      1586
                                                                                                                                                                                                                                                                                                                                                                               1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1346
                                                                                                                                             1766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    683
                                                       266
                                                                                                                 326
                                                                                                                                                                          386
                                                                                                                                                                                                                                                                                         506
                                                                                                                                                                                                                                                                                                                                                   566
                                                                                                                                                                                                                                                                                                                                                                                                            626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     803
                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭕
                                                 δ
                                                                                    밁
                                                                                                          Š
                                                                                                                                          문
                                                                                                                                                                    Ş
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                      片
                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                         뮍
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 12
US-09-252-991A-13733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-252-991A-13733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 13733
LENGTH: 1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 13733, Ap
Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
ORGANISM: Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2007
                                              1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1887
1707 CATCCGGGGACGGCTGCGGCCCGGCACCAGCACCGCCTGCGTACGCGCCGCCTTCCC 1766
                                                                                                                                                                               1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1227 CCGCGCGCGCCACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1347 GACGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         205 GGACAGCTCGATCGCCATCCGCACCCTGCTGGTCAGGAACGGCCAGGTCAGTTGCTGGGG 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGT 1946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGT
                                                                                                                                                                                                                           CGAGGAGGACATGGCGCTGGCGGCGTCGCTGCTGGCCAGCCCCAAGGACCGCGCGGAAAAA
                                                                                                                                                                                                                                                                       GGAGGAGGACGAGCGGCTCCGCCGGACCTGGCCGGCCGGGAGAAGGACCGGGCCGAGAA
                                                                                                                                                                                                                                                                                                                   CGCCGACGGCGCGTCGAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGCGCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                           CCTGCGACTGGCCGACGGCGATCCTCAGCCTGTCGCCGGAGCGCTTCCTCAAGCT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCGCCGTGGCCGATCGCGCCTATCGCGCCCTGCGCGAGGCCTGCCCGACGCCGTTCTCCGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCAGGCAGGCGACTGCTACCAGGTGAACTATAGCCAGCGCTTCCAGGCCGCTTGCAGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGACGGAGCATCAGCGCATCCGACTATCGGCAGGCGATCCGCCGCATCCAGGACTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTCCGGGTGCTGGAAACCCTGGAAGGGATGGCCGGGACAGCGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGGCGCATCGTCGCCGACTCGCACTGGGAGGACGAGTACCAGGAAACCCCTGGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGCGGGGGCGATCGTGTCCCTCCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAA
                                                                                                                                   CCTGATGATCGTCGACCTGCCGCAACGACATCGGACGCAGTTGCCAACCTGGCAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/09252991A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 268.4; DB 4;
Pred. No. 9.2e-36;
0; Mismatches 341;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1431;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PSEUDOMONAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2006
                                                                                       1706
                                                                                                                                                                               1646
                                                                                                                                                                                                                                                                       1586
                                                                                                                                                                                                                                                                                                                                                               1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      86
                                                                                                                                      1013
                                                                                                                                                                                                                                                                                                                   893
                                                                                                                                                                                                                                                                                                                                                                                                           833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                656
                                                                                                                                                                                                                           953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1;
```

```
á
                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                              밁
       밁
                                र्
                                                                             밁
                                                                                                             8
                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                              र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 13
US-09-252-991A-13943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-252-991A-13943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 13943, Application US/09252991A
Patent No. 6551795
GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
FULE REFERENCE: 107196.136
FULE REPERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT PILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 13943
LENGTH: 816
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 435; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA ORGANISM: Pseudomonas
                                                                                                                                                                                                                                                                  1469
                                                                                                                                                                                                                                                                                                                                           1409
                                                                                                                                                                                                                                                                                                                                                                                                         1349 CGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1134
                                                                                                                   1589
                                                                                                                                                                                         1529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1767
                                          1649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1074
                                                                               267
                                                                                                                                                        207
                                                                                                                                                                                                                               150
       327
                                                                                                                                                                                                                                                                                                      90
                                                                                                                                                                                                                                                                                                                                                                                30
                          ACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCA 1708
                                                                                                                                                                                                                                                                                                                        TCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCG
   GGGTACCGGAGCTGTTCGCCCTGGAAAGCTATCCCAACGTGCATCACCTGGTGAGCAGCG
                                                                                                                                                                           CCGACGGCGTCGAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGGCGCACCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCGGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGGAGTTCACCGAGACCGTGGTAAA
                                                                           TGATGATCGTCGACCTGCTGCGCAACGACATCGGACGTTGCCAACCTGGCAGCGTAC
                                                                                                             TGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCC
                                                                                                                                                                                                                                                                                                   TGCGACTGGCCGACGCGATCCTCAGCCTGTCGCCGGAGCGCTTCCTCAAGCTCGACA
                                                                                                                                                                                                                                                                                                                                                                          CGCCGTGGCCGATCGCGCCCTGCGCGAGGCCTGCCGACGCCGTTCTCCGGCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGACAGCTCGATCGCACCCTGCTGGTCAGGAACGGCCAGGTCAGTTGCTGGGG 1313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGT 1946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAAGGCCCCCGGGGCGTCTACTCCGGGGGCGCTCGGATGGTTCGCCCTCAGCGGCGCCGC 1886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGA 1826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTCACCGGCGAACTGGCGCCGGGCAAGGACGCCTCGACCTGCTGGAAGGCAGCTTCCC
                                                                                                                                                    AGGAGGACATGGCGCTGGCGGCGTCGCTGCTGGCCAAGGGACCGCGCGGAAAACC
                                                                                                                                                                                                                             GGTCCGGGTGCTGGAAACCCTGGAAGGGATGGCCGGGACAGCGTCCC 1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGGCGCATCGTCGCCGACTCGCACTGGGAGGACGAGTACCAGGAAACCCTGGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCGAGCCGACGCGCATCTACTGCGGCAGCCTGTTCTACCTCGACGTGCGCGGCGAGAT 1253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCGGCTCGATCACCGGCGCGCGCGAAGATTCGCGCCCATGCAGATCATCGACGAACTGGA 1193
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 260; DB 4; Length 816; Pred. No. 2.2e-34; O; Mismatches 270; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                 3
;
                                                                                                                                                                                                                                                                                                   149
                                                                                                               1648
                                                                                                                                                                                       1588
                                                                                                                                                                                                                                                                1528
                                                                                                                                                                                                                                                                                                                                       1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2006
                                                                                                                                                    266
                                                                                                                                                                                                                                                                                                                                                                                                              1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1133
                                                                                                                                                                                                                             206
                                                                                                                                                                                                                                                                                                                                                                            89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Wiegand, Roger C.
ITILE OF INVENTION: Myxococcus xanthus Genome Sequences and Uses Thereof FILE REFERENCE: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
VMMBER OF SEQ ID NOS: 16825
SEQ ID NO 5760
LENGTH: 1473
TYPE: DNA
ORGANISM: Myxococcus xanthus
                                    밁
                                                                         ঠ
                                                                                                             밁
                                                                                                                                        δ
                                                                                                                                                                                     밁
                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                              윰
                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 14
US-09-902-540-5760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-902-540-5760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 5760, Application US/09902540 Patent No. 6833447 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                              Matches 663;
   1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       447
                                                                                                                                                                                                                                                                                               779 CCTACCGCGTCGCCGACGCGTCGTCTCCGTCCGCGGCTCCGACGGCACCACGACCCGGA
                                                                                                                                                                                                                                                                                                                                                                719 AAGGCGCCTCGCGCTTCTCCTTCCTCGGCGACGACGCCGCGCGCCGCTCGCCGAGTACCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 387
TCGCCGACCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCCCCTCG 1078
                                                                                                                                                                                                                         CGCGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCG
                                    AGCCCTCGGTGCCGGACCGGCACCCCCAGCGACATCTCCTTCCCGGACTCGGAATGGCTGG
                                                                         AGGCCCCCTTCCTCGGCGGGCTCGTGGGGTACATGGGCTACAACTGCTTCTCGTGGCTGG
                                                                                                                                              CCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGA
                                                                                                                                                                                     ATCCCCTGGATGTGCTCCGCCAGCTCTGGCGCGAGCTGGCCGTGGCCCGGCTCCCTGGAG
                                                                                                                                                                                                                                                            ACGGCGGCGAGCGGTTCGGCCGCTACAGCCACATCGGCGCGGAGCCCGCGGGCCGCGTGC 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCGGGTGCTGGAAACCCTGGAAGGGATGGCCGGGACAGCGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGCGCCATGGTCACCGCCCTCGACGGCAGCGCCGTGGCGGGGGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGG 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGGCCCCCGGGGCGTCTACTCCGGGGCGCCCTCGGATGGTTCGCCCTCAGCGGCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGCTCGATCACCGGCGCGCCGAAGATTCGCGCCCATGCAGATCATCGACGAACTGGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCGGGGACGGCTGCGGCACCAGCACCGCCTGCGTACGCGCCGCCTTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGCGGCATCGTCGCCGACTCGCACTGGGAGGACGAGTACCAGGAAACCCTGGACAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACAGCTCGATCGCCATCCGCACCCTGCTGGTCAGGAACGGCCAGGTCAGTTGCTGGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCACCGGCGAACTGGCCGGGCAAGGACGCCCTCGACCTGCTGGAAGGCAGCTTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGAGCCGACGCGCATCTACTGCGGCAGCCTGTTCTACCTCGACGTGCGCGGCGAGATGG
                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                            11.3%;
                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                          Score 232.6; DB 4; Pred. No. 7.1e-30;
                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                             674;
                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1473;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2056
                                                                                                                                                                                                                                                                                                                                                                                                           6,
                                    436
                                                                         1018
                                                                                                                                              958
                                                                                                                                                                                                                                                                                                                                                                        778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1828
                                                                                                                                                                                                                         898
                                                                                                                                                                                                                                                            256
                                                                                                                                                                                                                                                                                                 838
                                                                                                                                                                                     316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     626
```

```
Ś
       밁
                       δ
                                                   В
                                                                       Ş
                                                                                                 뭉
                                                                                                                   S
                                                                                                                                                 밁
                                                                                                                                                                  S
                                                                                                                                                                                          В
                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
        1451
                                                                                                  1331
                                                                                                                          1919
                                                                                                                                                 1271
                                                                                                                                                                        1859
                                                                                                                                                                                                1211
                                                                                                                                                                                                                       1799
                                                                                                                                                                                                                                               1151
                                                                                                                                                                                                                                                                     1739
                                                                                                                                                                                                                                                                                           1091
                                                                                                                                                                                                                                                                                                                  1679
                                                                                                                                                                                                                                                                                                                                          1031
                                                                                                                                                                                                                                                                                                                                                                 1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        497
                                                                                                                                                                                                                                                                                                                                                                                       971
                                                                                                                                                                                                                                                                                                                                                                                                                                      911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCCATCA
                                                                 AGGAGGAGTTCACCGAGACCGTGGTAAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCA
                                                                                                                                                                  TCGGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCGGTGGCTCAGGCGCAGGAGTACATCCGCGCGGAGACATCTTCCAGGTCGTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cceeccreeccarcceccacceacceacccacccaccarecrarecrarecacarcccce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCGCCGGGGCCACGACGACGCCGCGCCGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCA 1138
      CGCGCGAGGGAGGTGGCCGGTGA
                            GCGCCGTGGCGGGCGCCCGATGA 2061
                                                                                                                        GCGCGATGCAAATCATCGACGAGTTGGAGGTCCAGCGGGCGCGGGCCCTATTCGGGCGCGG
                                                                                                                                                                                                                      GCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGC
                                                                                                                                                                                                                                                               CCGCCGCCTGCGTACGCCGCCGCCGTTCCCCCGGCGGCGCTCCATGACCGGCGCGCCCCAAGAAGCC
                                                                                                                                                                                                                                                                                          ACAGCCACGTGATGCACATCGTGTCGCAGGTGCGCGGCAAGCTCGACGCGAAGTACGACG
                                                                                                                                                                                                                                                                                                                                         TGGGCCGCGTGGCGCGCGTCGGTGCGCGTCGAGGACATGATGCTCATCGAGCGCT
                                                                                                                                                                                                                                                                                                                                                                TCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGGCTCTTCGAGGTGGAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                               CCGGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACC 1618
                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGGCACCCGGCGCGTGCGTCCGAGGCCCGAGGACCTGGCGCTGGAGAAGGAGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGCGTCGCCGGAGTTGCTGGTGCAGGTGCGCGACGGGGACGTGGTGGTGCGGCCCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCATCAGCCCCGTCCCGTACGGCGCCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGCGCATGC - - GTGGGGACGCGGCGCCTACCGCGTGCTGGGACCGCGCGGGGTATGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGCGGCGGCCTTCGGCCCCTGGCCCGCGCGCGCGACAAGGACGCCTACCTCA 1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGCCATGGCGGATCG----GTTGTTGAAACCACTGCCACCAGAGGCCTATGCGCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTGCGAGGACTTCGTCACGCACGACACCCGCACCGGGACGCTCAAGGCCACCGCCATTG
                                                   CGAAGGAAGCGGACGAGACGGAAGCCCAAGGCCGCCCCTGCGCCGCGCTGCGGCTGG
                                                                                                  TGGACGGAGACCGGACGATGTGGACCTCGGGCGCGGAGTGGTCGCGGACTCGGTGCCGT
                                                                                                                                                 TGGGCTACCTGTCCTTCTGCGGCACGCTGGACGTGGCGATTGCGCTGCGCACCTTCTTCG
                                                                                                                                                                                                                                               CGCTGGATGCGCTGGCAGCATTCCCCGCGGGCACGGTGTCGGGCGCGCCCAAGATTC
                                                                                                                                                                                                                                                                                                                 ACGCGCCCGTGCACCAGCTGGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1473
                                                                                                                                                                                                                                                                                                                                                                                      1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1498
                                                                           2038
                                                                                                                                                 1330
                                                                                                                                                                                                                      1858
                                                                                                                                                                                                                                                                                           1150
                                                                                                                                                                                                                                                                                                                  1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1378
                                                                                                                          1978
                                                                                                                                                                        1918
                                                                                                                                                                                                1270
                                                                                                                                                                                                                                             1210
                                                                                                                                                                                                                                                                    1798
                                                                                                                                                                                                                                                                                                                                         1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    496
                                                    1450
                                                                                                                                                                                                                                                                                                                                                                1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          612
S
                           В
                                                8
                                                                         밁
                                                                                            8
                                                                                                                          뭐
                                                                                                                                             S
                                                                                                                                                                        맑
                                                                                                                                                                                        8
                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-902-540-1272/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 663;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                 49715
                                                                                                                                                                                                                                                                    49655
                                                                           49421
                                                                                                                                                                                                                                                                                                                                                                 49775
                                                                                                                          49479
                                                                                                                                                                        49535
                                                                                                                                                                                                                       49595
                                                                                                                                                                                                                                                                                           1019
```

RESULT

```
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
NUMBER OF SEQ ID NOS: 16825
SEQ ID NO 1272
LENGTH: 54484
TYPE: DNA
OBCANTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1272, Application US/09902540
Patent No. 6833447
GENERAL INFORMATION:
APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Hinkle, Gregory C.
APPLICANT: Wiegand, Roger C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Genom
FILE REFERENCE: 38-10 (15949) B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-902-540-1272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Myxococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49895 GÉTTGGACCGGAACGGTGCCACCTTGTGGCGCGCGCGCGCGAGGAGCGCCCGGGACGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  719 AAGGCGCCTCGCGCTTCTCCTTCCTCGGCGACCGCGGGCCCGCTCGCCGAGTACCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cceeccreeccercceeccceecceaecceaecceeccareercriceearcccee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCGCCGGGGCCACGACGACGCCCCGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCA 1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGCCCCTTCCTCGGCGGGCTCGTGGGGTACATGGGCTACAACTGCTTCTCGTGGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATCCCCTGGATGTGCTCCGCCAGCTCTGGCGCGAGCTGGCCGTGGCCCCGGCTCCCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCGGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTACCGCGTCGCCGACGGCGTCGTCTCCGTCCGCGCGCTCCGACGGCACCACGACCCGGA
ccarcaeccccraccecccciecresaerrecceaacrerecterecres
                                                                                                       cececcerriceaarceceeecececececececiercecierinaceecececiecec
                                                                                                                                    CCAACATGGTCACCGCCGACCGACGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCG
                                                                                                                                                                                                               CGGCGGTGGCTCAGGCGCAGGAGTACATCCGCGCGGAGACATCTTCCAGGTCGTGCTCG 49362
                                                                                                                                                                                                                                                                  AGCGCATCGACGAGTGCCTCAAGGAGATCCGCCAACGGCGAGTCGTACGAGATCTGCCTGA 1318
                                                                                                                                                                                                                                                                                                                          AGGCGGCGGCCGGCTTCGGCCCCTGGCCCGCGCGCGCGACGACGACGACGTTACCTCA 1258
                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGCCATGGCGGATCG----GTTGTTGAAACCACTGCCACCAGAGGCCTATGCGCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGTGCGAGGACTTCGTCACGCACGACACCCGCACCGGGACGCTCAAGGCCACCGCCATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rcecceaccececariceccriceaccaccaeeaaeeacrecriecraccrecrecice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCCCTCGGTGCCGGACCGGCACCCCAGCGACATCTCCTTCCCGGACTCGGAATGGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGCGGAGACCACCGGCGACCCCGCACCGGTCCCCGACCCCGACGCGTTCCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCGCCTACGAGCTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGGCGGCGAGCGGTTCGGCCGCTACAGCCACATCGGCGCGGAGCCCGCGGGGCCGCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               xanthus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 232.6; DB 4; Pred. No. 7.5e-30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           674;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                54484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49716
                                                  1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                49656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           49836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   49776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   49896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N
```

र् 밁 Ś

맑

```
48761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               48821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               48881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   49121
                                                                                                                                                                     48641 CGCGCGAGGGAGGTGGCCGGTGA 48619
                                                                                                                                                                                                                                                                                                                                                                                                          48701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             48941 CGCTGGATGCCCCGCCAGCACCTTCCCCCGCGGCACGGTGTCGGGCGCCCCAAGATTC 48882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   49181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1979 AGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCCATGGTCACCGCCCTCGACGGCA 2038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1559 CCGGCCGGGAGAACGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACC 1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1439
                                                                                                                                                                                                                                                                                                                                                                                         CGAAGGAAGCGGACGAAGCCGAAGCCCAAGGCGCCATGGCCGCCGCCGCTGCGGCTGG 48642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGACGGAGACCGATGTGGACCTCGGGCGCGGGAGTGGTCGCGGACTCGGTGCCGT 48702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCTCGCCGGAGTTGCTGCTGCAGGTGCGCGACGGGGACGTGGTGGTGCTGCCGGCCCATCG 49182
                                                                                                                                                                                                                                                                                     ececcereceecececearea 2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   redectaccierccriciedescacecresacerescatrececrecedacericies 48762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       researestrescentes de la researca de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGCGCCCGTGCACCAGCTGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCA 1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGGCACCCGGCCCCTGGTGCGTCCGAGGCCGAGGACCTGGCGCTGGAGAAGGAGCTGC 49122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTCGCCCGAGCGGTTCCTCACGATCGGCGCCCGACGGCGCGTCGAGTCCAAGCCCATCA 1498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACAGCCACGTGATGCACATCGTGTCGCAGGTGCGCGAAGCTCGACGCGAAGTACGACG 48942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCT 1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCGCGGACGAGGAGCTCGCCGAGCACATCATGCTGGACCTGGGGGCGCAACGACG 49062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGGCCGCGTGGCGCGCGTCGGTGCGCGTCGAGGACATGATGCTCATCGAGCGCT 49002
ហ
2005, 10:06:39
```

Search completed: October Job time: 401.352 secs

밁 र् 밁 ð 망 ঠ 뮹 ঠ 밁 ঠ 밁 ঠ 문 ঠ 뭐 5 밁 á

This Page Blank (uspto)

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                         a
                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
              2061
1773.8
1772.2
769.8
606.2
606.2
301.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB seq length: 0
DB seq length: 2000000000
                                                                                                                                                                                                  Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleic search, using sw model
100.0 2061
86.1 3305
86.0 12391
37.4 138203
29.4 2196
29.4 9025608
14.6 9025608
                                                                                                                                                                                                  Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                   IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    October 4, 2005, 20:50:02; Search time 2023.38 Seconds (without alignments) 7033.027 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-1
2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7442561 segs, 3452328358 residues
                                                                                                                                                                                                                                                                                                                                                                                                  | Cgn2_6/ptodata/1/pubpna/USO7_PUBCOMB.seq:*
| Cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*
| Cgn2_6/ptodata/1/pubpna/USO6_NEW_PUB.seq:*
| Cgn2_6/ptodata/1/pubpna/USO6_NEW_PUB.seq:*
| Cgn2_6/ptodata/1/pubpna/USO6_PUBCOMB.seq:*
| Cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*
| Cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*
| Cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*
| Cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*
| Cgn2_6/ptodata/1/pubpna/USO9_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Published_Applications_NA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        atgcgcacgcttctgatcga.....ccgtggcggcggcccgatga 2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd.
                                                          14
14
21
15
            US-10-472-587-1
US-10-126-927-67
US-10-136-927-67
US-10-819-386A-1
US-10-156-761-1167
US-10-156-761-1
US-10-156-761-1
                                                                                                                                                                                                       占
                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                  Description
       Sequence 1, Appli
Sequence 68, Appl
Sequence 67, Appli
Sequence 1, Appli
Sequence 11, Appli
Sequence 1, Appli
```

ALIGNMENTS

RESULT 1 US-10-472-587-1

```
Sequence 1, Application US/10472587
Sequence 1, Application No. US20040214274A1
GENERAL INFORMATION:
APPLICANT: YANAI, KOŚI
APPLICANT: SUMIDA, Naomi
APPLICANT: WATANABE, Manabu
APPLICANT: MUTAKAMI, Tatsuki
APPLICANT: MUTAKAMI, Tatsuki
APPLICANT: MUTAKAMI, Tatsehi
TITLE OF INVENTION: Transformants Producing Sul
TITLE OF INVENTION: Producing The Same And No.
FILE REFERENCE: 2003-1302A/WMC/00144
CURRENT PILING DATE: 2003-09-22
FRIOR APPLICATION NUMBER: US/10/472,587
CURRENT FILING DATE: 2001-03-22
FRIOR APPLICATION NUMBER: WS227/2001
PRIOR FILING DATE: 2001-03-22
INUMBER OF SEQ ID NOS: 40
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 1
LENGTH: 2061
TYPE: DNA
ORGANISM: Streptomyces venezuelae
ERATURE:
NUMBER: GEG
                       Query Match
Best Local Similarity
                                                                                         NAME/KEY: CDS
LOCATION: (1)..(2058)
100.0%;
Score 2061;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Substance PF1022 Derivatives, Methods fo Novel Biosynthesis Genes
                       DB
                       20;
                       Length 2061;
```

Qy Db	B 9 B 9	Db Qy Db	\$ \$ \$ \$	Db Qy	Db Oy	Q B Q	g 49	D QY	A A	D Q D Q	Match Qy Db
1021 GCCGACCGCGCCATCGACCACCAGGAAGGCTGCTGCTACCTGGCCCTCGAC 1080	901 CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG 960	781 TACCGCGTCGCCGACGGCGTCGTCTCCGTCCGCGGCTCCGACGGCACCACGACCCGGACG 840 841 CGGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCACCGAACGCGGACGGGTCCCCGTCGCC 900	661 dedescribederische de	601 TCCCCGTACGAACTCCACGTGCGCGCGCGTGCCGGACGCGGAAGAGGTACGC 660	81 CGCTGTGGGGGGTCCAGTTCCACCCGGAGTTCCATCGGCCAGCGCACCTTCGGCCGGAGAT 41 ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCACGGGGCACGGCGCACGGGGGCACGGGCACGGGGCACGACG	421 CTCGAACCCCTCGCCTGGAGCGACCGACGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG 480	61 CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAG 42 61 CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAG 42		1 CGGGACTTCGGAATCAGCCGCCGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC 24	61 GGCGAGGCCACCGGGCAACCCCCCGTCGTCGCCAACGACGCCCCACCGTCGTCGCGCTG 120	es 2061; Conservative 0; Mismatches 0; Indels 0; Gaps 1 ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC 6
								•			
RESULT 2 US-10-126-927-68 ; Sequence 68, Application US/10126927		Db 1861 GAATGGTTCGCCCTCAGCGGCCGCCGCCCCCACCATCGTCATCCGCACCATCGTGCTG 1920 Qy 1921 GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGGGGGGG	1801 ACCATGGAGATCATCGACCGCCCTGGAGGAAGGCCCCCCGGGGCGTCTACTCCGGGGCGCTC 1	Qy 1681 GCGCCGTGCACCAGCTGGTGTGACCATCCGGGGACGGCTGCGGCCCGCACCAGCTACC 1740	1561 GSCCGGSANGGACCGGGCCGAGAACCTIGATCGATCGACCTIGGTCCGCAACGACCTCC 1621 AACAGCGTCTGCGCGATCGGCTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC	1501 GGGACCCGCCCGGGGCGACCCGCGGAGGAGGAGGAGGAGCGCCCCCGCGGCCGACCTGGCCCGCGGAGGAGGAGGACGAGCGGCCCCCGGGGCGCGACCTGGCCCGCGGAGGAGGAGGACGACCTCGGCGCCCCCGGGGCGGGC	1441 TOGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCCATCAAG	Db 1321 AACATGGTCACCGCCGCCGCCCGCGCCCGCCCCCCCCCC	Qy 1261 CGCATCGACGACTGCCTCAAGGAGATCCGCAACGGCGAGTCCTACGACATCTCGCCTGACC 1320	1141 1201 1201	Qy 1081 CGCCGGGGCCACGACGACGGCCGCCGCCGCCTTGGCTGGGGAGACGGCCGAGACCCTCACC 1140

당 양 당

8 8 8 8

Q B Q B Q B Q

당 상 당

8 8 8

```
GENERAL INFORMATION:
APPLICANT: The Scripps Research Institute
APPLICANT: Schultz, Peter G
APPLICANT: Schultz, Peter G
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Wanderson, John C
APPLICANT: Magliery, Thomas
APPLICANT: Meglers, Eric L
APPLICANT: Meglers, Eric L
APPLICANT: Meglers, Eric L
APPLICANT: Santoro, Stephen W
APPLICANT: Meglers: Us/10/126,927
CURRENT FILING DATE: 2002-04-19
CURRENT APPLICATION NUMBER: US/0/285,030
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR FILING DATE: 2002-06
NUMBER OF SEQ ID NOS: 79
SOFTWARE: PatentIn version 3.1
SEQ ID NO 68
LENGTH: 3305
TYPE: DNA
ORGANISM: Streptomyces venezuelae
US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
  유
                                                 밁
                                                                    र्
                                                                                                      밁
                                                                                                                       S
                                                                                                                                                      밁
                                                                                                                                                                          ঠ
                                                                                                                                                                                                    В
                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                      र्
                                                                                                                                                                                                                                                                                                                                                                    뭉
                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 1913; Conserv
                     541
                                                 457
                                                                                                                         421
  517
                                                                           481
                                                                                                      397
                                                                                                                                                        337
                                                                                                                                                                                361
                                                                                                                                                                                                         277
                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                            238
                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                              178
                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                 118
                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        سر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC
                                                                                                                                                                                                                                                                                                             CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC
CTCGAACCCCTCGCCTGGAGCGACGACGACGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                                    CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCCACCGACCTCCCCGACGAGGAG
                                                                                                                                                                                                                       CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                                                                                           TGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAA
                                                                                                                                                                                                                                                                                                                                                                                   CCCGTCGAGGACTTCGACGCGATCGTCGTCGTCCCCCGGGCCCCGGCAGCCCCGACCCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                   GGCGAGGCCACCGGGCAGCCCCCCG---
                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCGAGGCCACCGGGCAACCCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                CCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                                                                                                                         CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                CCCTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCGGGAA
                                                                                                   CTCGAACCCCTCGCCTGGAGCGACGACGGCGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 1773.8;
Pred. No. 0;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of Unnatural Amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Acids
                                                                                                                                                                                                                                                        - CGGCGGAA
                        600
                                                                                                                                                                                                                                                                                   300
                                                 516
                                                                           540
                                                                                                    456
                                                                                                                             480
                                                                                                                                                      396
                                                                                                                                                                              420
                                                                                                                                                                                                         336
                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                           276
                                                                                                                                                                                                                                                                                                             237
                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                 177
                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                    117
                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                             Ş
                                                    ď
                                                                               Ş
                                                                                                              멼
                                                                                                                                     Ś
                                                                                                                                                                                    δ
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                 뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
             1570
                                                                                                                                                                                                                                                                        1270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1057
                                                                                                                                         1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       781
             AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGGAGACCTC
                          AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC
                                                                            GGCCGGGAGAAGGACCGGGCCGAGAACCTGATCGTCGACCTGGTCCGCAACCGACCTC
                                                                                                                                       GGGACCCGCCCCGGGGCGCACCGCGGAGGAGGACGACCGGCTCCGCCCGACCTGGCC
                                                                                                                                                                                TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                                                                                ATCAGCCCCGTCCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCC
                                                                                                                                                                                                                                                                                   AACATGGTCACCGCGCCGACGAGGCGACGGCCCTGCCGCCTCTACTCCGCGCTGCGCGCCC
                                                                                                                                                                                                                                                                                                                                      CGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                           GCGGCGGCCGGCTTCGGCCCCTGGCCCCGCGCGCGCGACAAGGACGCCTACCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCCTGGCCGTCCGCGCCCGGCCGAGCCCGCCAGCCCCGCCATGGTCTTCGGGATCCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CGCCGGGGCCACGACGACGACGCCCCGCGCCCTGGCTGCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACCGCGTCGCCGACGGCGTCGTCTCCGTCCGCGGCTCCGACGGCACCACGACCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGCCTCGCGCTTCTCCTTCCTCGGCGACGACGGCCCGCTCGCCGAGTACCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCCCGTACGAACTCCACGTGCGCGCGCGTGCGGACGTGCCGGACGCCGAAGAGGTACGC
                                                                                                                                                                                                                                                                                                                                                                             GCGGCGGCCTTCGGCCCCCTGGCTCGCGCACGACGACAAGGACGCCT------
                                                                                                                                                                                                                                                                                                                                                                                                                              GGCCTGGCCGTCCGGCCGAGGCCGACCCCCGCCATGGTCTTCGGGGTCCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCGGGGCCACGACGACGCCCCCCCGCGCCTGGCCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGACCGCGCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGCGACCCTCTTCAGCTACCTGGAGGAGCAGCTCGAACCGCCGGCGGGTCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGACCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGGGCTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAGGTACGC
             1629
                                     1680
                                                                                      1620
                                                                                                                                                                                                                                              1440
                                                                                                                                                                                                                                                                                                                                                                                                      1260
                                                             1569
                                                                                                                1509
                                                                                                                                         1560
                                                                                                                                                                  1449
                                                                                                                                                                                          1500
                                                                                                                                                                                                                    1389
                                                                                                                                                                                                                                                                       1329
                                                                                                                                                                                                                                                                                                                          1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1020
                                                                                                                                                                                                                                                                                                                                                                                                                               1176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      636
```

Query Match B6.0%; Score 1772.2; DB 14; Length 12391; Best Local Similarity 92.8%; Pred. No. 0; Matches 1912; Conservative 0; Mismatches 98; Indels 51; Gaps 3; Oy ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC 60	; NUMBER OF SEQ ID NOS: 79 ; SOFTWARE: Patentin version 3.1 ; SEQ ID NO 67 ; LENGTH: 12391 ; TYPE: DNA ; ORGANISM: Plasmid pSC101, Streptomycese venezuelae papABC US-10-126-927-67	TITLE OF INVENTION: In VIVO Incorporation of Unnatural Amino Acids FILE REFERENCE: 54-000120US CURRENT APPLICATION NUMBER: US/10/126,927 CURRENT FILING DATE: 2002-04-19 PRIOR APPLICATION NUMBER: US 60/285,030 PRIOR FILING DATE: 2001-04-19 PRIOR APPLICATION NUMBER: US 60/355,514 PRIOR FILING DATE: 2002-02-06		BESULT 3 S-10-126-927-67 Sequence 67, Application US, Publication No. US200300825: GENERAL INFORMATION: GENERAL INFORMATION: APPLICANT: The Scripps Reseapplicant: Schultz, Peter APPLICANT: Wang, Lei			Db 1630 GGGCCGGTGCACCAGCGGGCGGCGCGGGACCAGCAGCACCAGCACC 189 Qy 1741 GCCGCCGTACGGCGCCGCCTTTCCCCGGGGCTCCATGACCGGGCCCGGAAGAAGCACC 1800	Qy 1681 GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACCGGCTGCGGCCCGGCACCAGCACC 1740
D Q D Q D Q Q D Q Q	Qy DD S	Q D Q D .49	?	рь Оу Оу	Db Oy	Db Qy	D	— ?
1020 GCCGACCGCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTGCTGCTGGCCCCGACCCCGACCACCAGGAAGGCTGCTGCTGCTGCTGGCCCTCGACCCTCGACCACCAGGAAGGCTGCTGCTGCTGCTGGCCGACCACCACCACCACGACGACGCCCTCGACCCTCACCCCCCAGGAAGGCTGCCTGGCTGG			GCGCTGCCGGCGAGGGCACCACGTTCTGGCTGGCTGACAGCAGCACGTCCTCGAA	41 ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCACCGGGCACGGCCGACGACGACGACGACG	421 CTCGAACCCCTCGCCTGGAGCGACGACGACGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG 480	301 CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCCGGGGCCTC 360	121 CCGTCGGGCATCGGGGCATCGTCTTCGGCGGAACCGTCGGCGGAA 200 181 CGGGACTTCGGAGGCGCGGGCGGCGATCGTCGTCGTCGCCGGCAGCCCGGACCGGAAC 200 181 CGGGACTTCGGAATCAGCCGCCGGCGATCACCGACAGCCGGCACCGGCACCGGACCGGCTCCCCGGCGCTCCTCGGCGTCCCCGGCGTCCTCGGCGTCCCCGGCGTCCTCGGCGTCCTCGGCGTCCTCGGCGTCCTCGGCGTCCTCGGCGTCCTCGGCGTCCTCGGCGTCCTCGGCGG	

```
RESULT 4

US-10-819-386A-1

; Sequence 1, Application US/10819386A
; Publication No. US20050089884A1
; GENERAL INFORMATION:
; APPLICANT: Korea advanced Institute of Scie
; APPLICANT: Shanghai Jiaotong University
; APPLICANT: LEE, Sang Yup
; APPLICANT: DENG, ZIXIN
; APPLICANT: JEONG, XI Jun
; APPLICANT: JEONG, XI Jun
; APPLICANT: ZHOU, XIUFEN
                                                                                                                                                                                              밁
                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                              ð.
                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                        1801
                                                                                                                                                                                                                                                1953
                                                                                                                                                                                                                                                                           1981
                                                                                                                                                                                                                                                                                                      1893
                                                                                                                                                                                                                                                                                                                               1921
                                                                                                                                                                                                                                                                                                                                                            1833
                                                                                                                                                                                                                                                                                                                                                                                     1861
                                                                                                                                                                                                                                                                                                                                                                                                                1773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1201
                                                                                                                                                                                                             GCCGTGGCGGGCGCCCGATGA
                                                                                                                                                                                                                                               GAGGAGTTCAGGCAGACCGTGGTCAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                   GCCGACGGCCAGGCGGAGTTCGGCCGTCGGCGGGGCGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                     GGATGGTTCGCCCTCAGCGGCGCCGCCGCCGCTCAGCATCCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                              ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGCCTGCGTACGCGCCGCCTTCCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACCGCCTGCGGCCCCGGCACCACCATCCGGGGACCGGCTGCGGCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACCGACCTC
                                                                                                                                                                                           GCAGTGGCGGGGCGCACGATGA
                                                                                                                                                                                                                                                                        GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                             CCCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTTACCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGACCCGCCCCCGGGGCCACCGGCGGAGGACGACCGGCCGACCCGCCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                         GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGCGCTCCATGACCGGCGCGCCCAAGAAGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCCCGTGCACCAGCTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACAGCGTCTGCGCGATCGGCTCCACGTGCCCCGGCTCTTCGAGGTGGGAGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCCATCAAG 1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCAGCCCCGTCCCGTCTGGCGCCCCTGCTCGAGTTCCCCGAGCTGTCGGGTGCTCAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCAGCCCCGTCCCGTACGGCGCCCCTGCTCGAGTTCCCCCGAACTGTCGGTGCTGAGCGCC 1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2033
                                                                                                                                                                                                                    2061
                                                                                 Science
                                                                                   and
                                                                                                                                                                                                                                                                        2040
                                                                                                                                                                                                                                                                                                                             1980
                                                                                                                                                                                                                                                                                                                                                                                    1920
                                                                                                                                                                                                                                                                                                                                                                                                                                        1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1620
                                                                                                                                                                                                                                               2012
                                                                                                                                                                                                                                                                                                   1952
                                                                                                                                                                                                                                                                                                                                                         1892
                                                                                                                                                                                                                                                                                                                                                                                                             1832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1320
```

```
; TITLE OF INVENTION: Genes for the Synthesis of FILE REFERENCE: PO03-B015;
; CURRENT APPLICATION NUMBER: US/10/819,386A; CURRENT FILING DATE: 2004-04-06
PRIOR APPLICATION NUMBER: KR10-2003-0074035; PRIOR FILING DATE: 2003-10-23; NUMBER OF SEQ ID NOS: 28; SOFTWARE: Patentin version 3.2; SEQ ID NO 1
Ş
                                                                                                                           Ş
                                                                                                                                                                                                                                  Ş
                                                                     밁
                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; LENGTH: 138203
; TYPE: DNA
; ORGANISM: Streptomyces
US-10-819-386A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 37. Best Local Similarity 63. Matches 1335; Conservative
                                                                                                                                                                                                                                                                                                          19210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGCCACGGCGCTCCGGGTCATCGCCGAGTCGCTGCCCACGCGCTGGGACGCCGAGGTC
                                                                                                                                                                                                                                                 GAGGTACGCCGCCGCCTGCCCCGGCGAG-----
                                                                                                                                                                                                                                                                                                       GCGGGGCACGCACGCTCCCGCCCCCCGCGCCCCCGGGAGACGACGGCCACCACCGCC
                                                                                                                                                                                                                                                                                                                                                    GGGGCCGACTCCCCGTACGAACTCCACGTGCGCGCGTCGACGTGCTGCCGGACGCCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                    cTGCTGGCCAACTTCCGCGACCTCACCGAGCGCCACGGCCGAACGCCGCCGGGCGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCGGCCACCGGGCACGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGCCGCTGTGGGGGGGTGCAGTTCCACCCCGAGTCGATCGGCACCCAGGACGGCCACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGCTGGAGGCCACCGCCTGGTCGGAGGACGGGGTCCTGATGGCGCTGCGCCACCGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGCTCGAACCCCTCGCCTGGAGCGACGACGACGGGTCGTCATGGGCCTTGCGGCACCGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGCCGCAGCCGCTGGAGGTGGTGGCGGTACCACTCCCTCGCGGTGACGGAACTGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCCCCTCGCCGTTCACCGCCGTGCGCCTACCACTCCCTGGCCGCCACCGACCTCCCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAACCCATGCACGGCCGGGTCTCCGAGGTGGGGCACACCGGCGAGGACGTCTTCCGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           grende de la compara de la com
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCTGCCTCGGCCACCAGGCATCGCCCAGGTCTTCGGCGGAACCGTCGGCCTCGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGTCTGCTCGACGCGTTCGACAACGTGGTGCTCTCCCCCGGGGCCGGGTACCCCACACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGCCCGTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGGCCCCGGCAGCCCGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCCGGGCCAACGGCCGGGAACCCGAGGTCATCCGCAACGACGACCCCGGCCTGGCGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACG----CCGACTGGTCGCGG
                                                                     GCCTTCGACTCGCTGTTCCGCACCGGCGACCACCCCTTCTGGCTCGACAGCAGCCGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGCCGACTTCGGCCTGTGCGCCCGGATCGCCGAGGAGGGCCGGCTGCCGGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FR-008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 769.8; DB 21;
Pred. No. 8.2e-159;
0; Mismatches 682;
                                                                                                         -----GGCACCACGTTCTGGCTGGACAGCAGCTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FR-008 Polyketides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           138203;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                     19389
                                                                                                                                                                                                                                                                                                                                                                                                                       19209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
```

19390 GGGGGCGAGCTGGGCCAGCTCTCCGTGATGGGCGACGCCTCAGGTCCCCTCGCCCGGACC

```
19564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1375
                                                                                                                                                                                                                                                                                                GACCTCAACAGCGTCTGCGCGATCGGCTCCGCCTCCACCGTGCCCCGGCTCTTCGAGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                   CTGGCCGGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCAAGGGACCCGCCCCGGGGGCGGCACCGCGGAGGAGGACGAGCGGCTCCGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCGACCGCCGGGGCCACGACGACGACGCCCGCGCCTGGCTGCCGGGAGAGACGGCCGAGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCAAGGCCGACGTGCACGCCGGAACGGTCACGGTGAGAG---CCGACGGCGCCAGCAGC
AAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGG 1854
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCAGCTCTCCGGAGCGGTTCCTGCGCATCGACCGGCACGGGCGGATGGAGTCCAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGGGTGAGCCCCCGCGTTCGCCGCGTTCCTGGACTTCGGCCCCATGGCCGTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGACCAACATGGTCACCGCGCCGACCGACGGCGACGGCCCTGCCGCCTCTACTCCGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCACCGGCCTGGCCGTCCGCGCCCCGGCCGAGCCCGACCCCCGCCATGGTCTTCGGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCTTCGCCGACCGGGCCCTGGTGCTGGACCACCGCACCCGCACCCTACCTGCTGGCG 19743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCTTCGCCGACCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTGAAGGCCGAGTGCGACGCGACGCGCGCACCGCTCACCCGATCCCGACGCCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGAAGGCGGAGACCACCGGGGACCCCGGCGCACCCCGCACGCCCGCGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGGTGCCCGAACTTCCCTTCGCGTTCGCGCTCGGCTGGGTCGGCTGCCTGGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGGTCGAGAGCGCCTTCCTGACCTGGCTGGAGAACGACCTGGCGGGGCTGCG---CACC
                                                                                                                                   AGCACCGCCGCCTGCGTACGCCGCCGCCTTCCCCCGGCGCTCCATGACCGGCGCGCCCCAAG
                                                                                                                                                                               ACGTACGCGACCGTGCACCAGCTGGTCACTGCCGCGGCGGCTGCGAGGACAGC
                                                                                                                                                                                                                      ACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGACGGCTGCGGCCCGGCACC
                                                                                                                                                                                                                                                                    GACCTGGGGCGGTGCGCCGAGGTCGGCTCGGTCGTCGCCGACCCGGTGTTCCAGGTCGAG
                                                                                                                                                                                                                                                                                                                                                           CTGGCCACCTGCGAGAAGGACCGCGCGAGAACCTGATGATCGTCGACCTGGTCCGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGCCATCAGCCCCGTCCCGTACGGCGCCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cTGACCAACATGGCCGAGGCGGACACCGACCTCACCCGTGGGCGGCCTACCGCGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGAAGCTGATCGACGTCTGCCAGCAGGAGATAGCCGCCGGGGAGACCTACGAGGTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGAGGCGCCCGTGTGCACGACGGGTCCGGTGGAGCTGCGCCACGACCGGGACGGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGGAGGCCATCGCCGGGCGGGAGCC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGGTGGAGGACGACGCCGAGGCCGAGGCACGCCTCGCCGCCGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGACGCGGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cTCACCTACCGCGTCGCCGACGGCGTCGTCTCCGTCCGCGGCTCCGACGGCACCACGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----CGAGCCGTGC
                                                                                                                                                                                                                                                                                                                1674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20019
  20499
                                                                                                                                                                                                                                                                    20319
                                                                                                                                                                                                                                                                                                                                                           20259
                                                                                                                                                                                                                                                                                                                                                                                                       1614
                                                                                                                                                                                                                                                                                                                                                                                                                                                 20199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19506
                                                                                       20439
                                                                                Ş
                                                                                                                              맑
                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                       문
                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
```

S 밁 Ś 밁 Ş В δÃ 밁 Ś 망 Ş 밁 8 밁 5 밁 Ş В Ś В 8 ₽ Š 밁 Ś 밁 S 밁 Ś 밁 Ş 밁 Š 밁 S

밁

```
; NAME/KEY: CDS
; LOCATION: (1)..(2196)
US-10-156-761-1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: ONURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION UNMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION DATE: 2001-08-02
UNIMBER DOF STO 15004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 5
US-10-156-761-1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 1167
LENGTH: 2196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1167, Application US/10156761 Publication No. US20030119018A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 1262;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
ORGANISM: Streptomyces
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20680 ACCGCCTTCCCGG
                            299
                                                                                                                                                                                                                                                      122
                                                                                                                                                                                                                                                                                                  122
                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                            62 GCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                        N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCAGCGCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGCTCGGATGGTTCGCCCTCAGCGGCGCCGCCGCCGACCTCAGCATCGTCATCCGCACCATC
AACCCATGCACGCCGGGTCTCCCGAGGTGCGGCACACCCGGCGAGGACGTCTTCCGGGGGCC
                                                                        TCTGCCTCGGCCACCAGGGCATCGCGGCGGGGGGAGCGGGCCTGGGTGACCCCGGCACCGG
                                                                                                    TCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGG
                                                                                                                                                               GACGTGACTTCGGCATCGTCGGCGAGCTGCTCGCCGCGGCCCCCGTGCCCGTGCTGGGCG
                                                                                                                                                                                                AACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCTCGGCG
                                                                                                                                                                                                                                                        CGGATCTCCGGGATTTCGCCAACGTGGTGGTGTCGCCGGGGCCCCGGACACCCCCGCGAAGA 181
                                                                                                                                                                                                                                                                                                cce---rceaegactrceacecearcererererececegecececegeaececege
                                                                                                                                                                                                                                                                                                                                                 CCGAGGTGAACGGCGAGGAGCCGGTGGTCGTCCTCAATGACGCCCCGCCGGACGACATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                        TGAAGACCCTGCTCATCGACAATTACGACTCGTACACGTACAACCTGTTCCAGCTGATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGGCCGACGAGTTCGAGGAGACGGCGGTCAAGGCCGCCCCCCCTGCTGCGTCTCCTCGAC 20679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCGCCATGGTCACCGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGCTGGCCGACGGCGAGGTCGGCGTCGGCGGGGGGGGATCGTGTCCCTCTCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCATCGGCTACTTCTCCCTCACCGGCGCGCGGTGGACCTGTCCATCGTGATCCGCACGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29.4%;
ilarity 58.3%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 606.2; DB 15;
Pred. No. 6.6e-123;
0; Mismatches 763;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 2196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1974
                            358
                                                                        301
                                                                                                                                                                 241
                                                                                                                                                                                                              238
                                                                                                                                                                                                                                                                                                     178
                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6
```

ð

밁

밁

5

믕

```
1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1025
                                                                   1262
                                                                                                                                                                                                                                                                           1244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1019
       1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCGCCTACGAGCTGAAGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gegeccaceaceaceacecececeres are secretarian and secretarian an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGCGTCTTCGACTACCTGAAACGGCAGTTGGTGACCCGTCAGGT---GGATGCCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCCTCGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTCCCGTTTCTCGTTCTTCGGTGACGGCACCGGACCGCTGGCCGAGTTCGTACGGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCATCGACGAGTGCCTCAAGGAGTCCGCAACGGCGAGTCGTACGAGATCTGCCTGACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCGCGCCATCGACCTCGACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGTCGAGAGCGGCCTCTGTGAGATCGAGCGGCCCGGGCGGCCCGTGCGCAAGGTCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTGCCTGCCGGCGAGGGCACCACGTTCTGGCTGGACAGCAGCTCCGTCCTCGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cccedccdcreredededrecaerrecaecegaerecereaeceaerregeeraec 541
TGGCCGTCCGCCCCGGCCGAGCCGACCCCCCCATGGTCTTCGGGATCCCCGAGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                              TCTGTCTCGCCGAGAACACCCGGCAGGGCGCCACAGCAAGCGGCCGACTGGCTCGACGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCGGCTGATCGCAGTGGACCATCAGGACGGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGACCACCGGCGACCCGGCACCGGTCCCCGCACCCCGACGCCGCGTTCCTCTTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGATGTACACCGACGCGCCCCGCGCGTTCTGGCTCGACAGCTCCCGGGTCGAGGAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCACCGCCTTCACACCCGGCGGATCGACGTGGCCGTGGACGCCGAGGCGGCCTTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTACGAACTCCACGTGCGCCGCGTCGACGTGCCGGACGCCCGAAGAGGTACGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGAGGGGGCCGGCAGCACCCGCCGTGCTGGTCCCCGGCCCCGTCGCGTGGCCCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCG 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGA.---CCTCCCCG 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGCCCGTACGTCCGGAACGCGACGACCGAGCCCCCGTGCGGCCCCCGTCCCCAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACCTTCGGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGAGCCTGGAGCCCACCGCCTGGGCGGAGGACGGCGTGCTGATGGGACTGCGGCACCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCCCCGCCACGGCCATCTGTCCACCGTCCGGCACAACGGCCAGGACCTGTTCGAGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACGGCGCCACGGGGCCGACTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -ĠĊĊACĊTĂĊGCĊG
                                                            1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1084
                                                                                                                                1363
                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                                                                                                                           1204
                                                                                                                                                                                                                                                                                                                                                                                                           1243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                       1303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
```

```
ð
                                               음 성
                                                                                      문
                                                                                                                 δ
                                                                                                                                            밁
                                                                                                                                                                S
                                                                                                                                                                                        밁
                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                 DЪ
                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                1964
                                                                        1982
                                                                                                                         1922
                       2042
                                                                                                2024
                                                                                                                                                                                                                          1802
                                                                                                                                                                                                                                                 1844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1322
                        င္ပင္ပ
TCG
                                                              AGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCGCCATGGTCACCGCCCTCGACGGCAGCG
                                                                                                            GATGGTTCGCCCTCAGCGCGCCGCCGCCGACCTCAGCATCGTCATCCGCACCCATCGTGCTGG
                                                                                                                                                                                                CGATGGAGATCATCGACTCGCTGGAGACCGAGGCCCGCGGGGTGTACTCCGGAGCCATCG
                                                                                                                                                                                                                CCATGGAGATCATCGACCGCCTGGAGGAGGAGGCCCCCGGGGCGTCTACTCCCGGGGCGCTCG
                                                                                                                                                                                                                                               GCCGGGTCTGCCGGACCGGGACGGTGAAGGTCACCCGCTGATGGCGACGAGACGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                 CGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCCATCAAGG 150:
                                               GCGAGTACGACGAGATGCTGCTGAAGACGGCCGCACCGATGCGCGCCCACCGCGACCGGA
                                                                                                cceacegegagarecacciceececegegegerecearcerccicearcegerece
                                                                                                                                                GCTACTTCGGGTGCAGTGGGGGCGCGGACCTCGCCATCGCCAGCCGCACGGCCGTGTTCA
                                                                                                                                                                                                                                                                                                 CCACCGTGCACCAGTTGGTCTCCACCGTCGAGGGGCGGCGGCGGCGAGGGCATCGGAGCGG
                                                                                                                                                                                                                                                                                                               CGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACCG
                                                                                                                                                                                                                                                                                                                                                                        acagegrerecearcearcearceacerececegererrecaegregaeaecrace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCCCGAGCGTTTTCTGCGGATCACCCGCGACGCGTCGCCGAGGCCAGACCCGTCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCACCGCGCGCGCGAGCGAGCGAGGAGGACGCCCGGCTACGGGACGCGCTCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGACCCGGCGCCGTACGCGGCCTATCTGCGGTTCGGTGACCTCGATGTGGCCGGCTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGCGGCCAGGCTGCCCGCCCCGTACGACCCCCTACGACTTCTACCGGGTACTGCGTCGTC 1483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTTGCGCGCCA 1381
                       2044
2146
                                                                                                                                                                                                                                                 1903
                                                                                                                                                                                                                                                                                                                         1741
                                                                                                                                                                                                                                                                                                                                                                        1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1543
                                               2143
                                                                                                                        1981
                                                                                                                                                2023
                                                                                                                                                                       1921
                                                                                                                                                                                                1963
                                                                                                                                                                                                                         1861
                                                                                                                                                                                                                                                                        1801
                                                                                                                                                                                                                                                                                                 1843
                                                                                                2083
                                                                                                                                                                                                                                                                                                                                                  1783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1603
```

US-10-156-761-1/c

US-10-156-761-1/c

Sequence 1, Application US/10156761

Publication No. US20030119018A1

GENERAL IMPORMATION:

APPLICANT: OMURA, SATOSHI

APPLICANT: IKEDA, HARUO

APPLICANT: IKEDA, HARUO

APPLICANT: SAKAKA, JUN

APPLICANT: SAKAKI, YOSHIYUKI

APPLICANT: SAKAKI, YOSHIYUKI

APPLICANT: SAKAKI, YOSHIYUKI

APPLICANT: HATTORI, MASAHIRA

TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES

FILE REFERENCE: 249-262

CURRENT FILING DATE: 2002-05-29

PRIOR APPLICATION NUMBER: US/10/156,761

CURRENT FILING DATE: 2001-05-30

PRIOR APPLICATION NUMBER: JP 2001-272697

유

밁 δ 밁 S 뭥 δ 밁 र् В ક 밁 5 밁 र् 밁 र् 밁 र् 문 ঠ 망 S 밁 S 밁 ঠ 밁 S B ð

```
S
                                   밁
                                                             Ş
                                                                                                      밁
                                                                                                                                  Ś
                                                                                                                                                                         밁
                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; NAME/KEY: misc feature ; LOCATION: (4187715) ; OTHER INFORMATION: a, t US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 1262; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 1
LENGTH: 9025608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA
ORGANISM: Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1470476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1470536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1470596
                                    1469816
                                                                                                                                                                         1469936
                                                                                                                                                                                                                                                                                                             1470056
                                                                                                                                                                                                                                                                                                                                                                                1470116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1470356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1470416
                                                                      665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCCCCGCCACGGCCATCTGTCCACCGTCCGGCACAACGGCCAGGACCTGTTCGAGGGCC
                                    GGATGTACACCGACGCGCCCCGCGCGTTCTGGCTCGACAGCTCCCGGGTCGAGGAGGGAC 1469757
                                                                                                                                                                         CCGAGGGGGCCGGCAGCACCCGCCGTGCTGGTCCCCGGGCCCCGTCGCGTGGCCCCGT
                                                                                                                                                                                                                                                                                                                                                                                                AGAAGCCGCTGTGGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACGTGACTTCGGCATCGTCGGCGAGCTGCTCGCCGCGCGCCCCGTGCCCGTGCTGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGAGGTGAACGGCGAGGAGCCGGTGGTCGTCCTCAATGACGCCCCGCCGGACGACATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGAGGCCACCGGGCAACCCCCCCGTCGTCGTCGTCCCAACGACGCCGACTGGTCGCCGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGAAGACCCTGCTCATCGACAATTACGACTCGTACACGTACAACCTGTTCCAGCTGATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATCG
                                                                                                    CCCACCGCCTTCACACCCGGCGATCGACGTGGCCGTGGACGCCGAGGCGGCCTTCACCC
                                                                                                                                                                                                                                                                                                           GGATGTTCGTGAACTTCCGCGAGCTGACGGCCTCCCGCGCCCCGCGAGACTCGCACGGCCA 1469997
                                                                                                                                                                                                                                                                                                                                AGATCATGGCCAACTTCCGCGACCTCGCCCACCGGG-------
                                                                                                                                                                                                                                                                                                                                                                            TGAGCCTGGAGCCCACCGCCTGGGCGGAGGACGGCGTGCTGATGGGACTGCGGCACCGCT 1470117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCCCCAGCAGTTCACCGCGGTCCGCTACCACTCCCTGTCGGTACGGGAACCGCTGCCAC 1470177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGA---CCTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGATCTCCGGGATTTCGCCAACGTGGTGGTGTCGCCGGGGCCCCGGACACCCCCGCGAAGA 1470417
   CCTCGCGCTTCTCCTTCCTCGGCGACGACCGGCCCGGCTCGCCGAGTACCTCACCTACC
                                                                    GCTGCCTGCCCGGCGAGGGCACCACGTTCTGGCTGGACAGCAGCTCCGTCCTCGAAGGCG
                                                                                                                                                                                                                                          AGGCCCGTACGTCCGGAACGCGACCGACCCGAGCCCCCGTGCGGCCCCCGTCCCCAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTGCCTCGGCCACCAGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cce---TcGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCGG
                                                                                                                                       CGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAGGTACGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29.4%; ilarity 58.3%; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 606.2; DB 15;
Pred. No. 1.8e-123;
0; Mismatches 763;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  unknown
                                                                                                                                                                                                        CACGGCGCCACGGGCCGACTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels 138; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1470537
   784
                                                                                                      1469817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1470237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1470297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1470357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1470477
                                                                             S
                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                 S
                                                   밁
                                                                                                                    밁
                                                                                                                                                S
                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1469579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1469636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1469756 AGTCCCGTTTCTCGGTGACGGCACCGGACCGCTGGCCGAGTTCGTACGGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1469114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1469174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1469234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1469294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1469354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1469414 TCTGTCTCGCCGAGAACACCCGGCAGGGCGCACAGCAAGCGGCCGACTGGCTCGACGCGG 1469355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1469519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1469696
                                                                                                                                                                                                                                                                                                                                                                                              1469054
                                                                                                                                                                                                                                                                                                                                                                                                                               1442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACCA 1321
CCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTCG
                                                                    CCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCGCCCAAGAAGCGCA
                                                                                                                                         CGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACCG
                                                                                                                                                                                       GCCGGGTCTGCCGGACCGGGACGGTGAAGGTCACCCGCCTGATGGCGACCGAGACGTGCG
                                                                                                                                                                                                            ACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCCGGCTCTTCGAGGTGGAGACCTACG
                                                                                                                                                                                                                                                          CGGACGACAAGACCCGCGCGGAGAACCTGGTGATCGTCGACCTGCTCCGCAACGACCTGG
                                                                                                                                                                                                                                                                             GCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCA 1621
                                                                                                                                                                                                                                                                                                                             GCACCGCGCCCCGCAGCGGCCGGAGGAGGACGCCCGGCTACGGGACGCGCTCACCA
                                                                                                                                                                                                                                                                                                                                              CCCCCGAGCGTTTTCTGCGGATCACCCGCGACGCGTCGCCGAGGCCAGACCCGTCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGTCGAGTCCAAGCCCCATCAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGACCCGGCGCCGTACCGGCCTATCTGCGGTTCGGTGACCTCGATGTGGCCGGCTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCCGAACTGTCGGTGCTGAGCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACATGGTCACCGCGCCGACCGAGGCGACGGCCTGCCGCCTCTACTCCGCGCGCTGCGCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ceecceecrīrceecccccee---cccecececececeacaacaacaccctaccicaaec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGATGGCCCAGCTCAGTTTCGTGTCCTCGGCCAAGCCGACCGCCCCCCCGCCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       reeccerccececceceaecceaecceaecceareccareercrreeearcccceaecee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACTGCCGTTCGACTTCACCGGCGGGTATGTGGGCTACTTCGGCTACGAGGTGAAGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGGCTGAAGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGCGTCTTCGACTACCTGAAACGGCAGTTGGTGACCCGTCAGGT----GGATGCCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGTCGCCGACGGCGTCGTCCGTCCGCGGCTCCGACGGCACCACGACCCGGACGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGCGGCCAGGCTGCCCCCCCCCTACGACCCCTACGACTTCTACCGGGTACTGCGTCGTC 1469115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGGCCACGACGACGGCGCCCGCGCCTGGCCTGCGGGAGACCCCTCACCGGCC
```

1741

1468755

1468815

1468935

1468875

1501

1468995

1469055

1261

1469295

1469235

1469415

1084

964

1469580

1469637

```
APPLICANT: ONDAY.

APPLICANT: IKEDA, HARUO

APPLICANT: IKEDA, HARUO

APPLICANT: ISHIKAWA, JUN

APPLICANT: SHIBA, TADAYOSHI

APPLICANT: SHIBA, TADAYOSHI

APPLICANT: SAKAKI, YOSHIYUKI

APPLICANT: BAKAKI, YOSHIYUKI

APPLICANT: HATTORI, MASAIRA

TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES

FILE REFERENCE: 249-262

CURRENT APPLICATION NUMBER: US/10/156,761

CURRENT FILING DATE: 2001-05-29

PRIOR APPLICATION NUMBER: JP 2001-204089

PRIOR FILING DATE: 2001-05-30

PRIOR FILING DATE: 2001-08-02

PRIOR FILING DATE: 2001-08-02

VONDBER OF SEQ ID NOS: 15109

SEQ ID NO 1

TENCTUL GOSSON
                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                          밁
                                                                                                                                                         Ś
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
     멍
                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 7
US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1, Application US/10156761 Publication No. US20030119018A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 14.6%;
Best Local Similarity 49.7%;
Matches 948; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc feature LOCATION: (4187715)
OTHER INFORMATION: a, t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA
ORGANISM: Streptomyces
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 9025608
     7417596
                                                                                                                                                                                                                                                                                                                                                                                                                                     7417356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1468514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1468634
                                                       375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  135 CGACGCGATCGTCGTGTCCCCGGGGCCCCGGCAGCCCGGGAACGGGACTTCGGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTACTTCGGGTGCAGTGGGGGGCGCGGACCTCGCCATCGCCAGCCGCACGGCCGTGTTCA
CGACACCTCCGGCCACGTCCAGTACGTGAAGTCCGTAGCCCTCGACTGCGACGCCGACAC
                                                                                                       GCTCACCACGGGCCGCTGCACCTACTGGTCGCGCAGCCGCGGGAGTACTGGGTGAAGGG
                                                                                                                                                                                                              GTACGACACCGGTGAGGTGCTGATGCTCGGCTGGATGATGACGAGGCGCTGCACCGCAC
                                                                                                                                                                                                                                                                                                                                                                          CAGCCGCCGGCCATCACCGACAGCGGCCTGCCCGTCCTCGGCGTCTGCCTCGGCCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                             COGCACAATGOTCOGCATGACCAGCACGCCCCAGCCAGCAGGCCCAGCAGCCTGGACGC 7417415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              င္ပင္ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGAGTTCACCGAGACCGTGGTAAAAGGCCCGCGCGCATGGTCACCGCCCTCGACGGCAGCG
                                                                                                                                                         GGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGGCCTCCCCTCGCCGTTCAC
                                                                                                                                                                                                                                                                      GGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCGGAACCCCATGCACGGCCG
                                                                                                                                                                                                                                                                                                                        CGAGATCGCCGCGCCCTCAAGCGCAGCGCCGACGGGCTCGTCCCCGCCATCGCCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGAGTACGACGAGATGCTGCTGAAGACGGCCGCACCGATGCGCGCCCACCGCGACCGGA 1468455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGACGGCCAGGCGGAGTTCCGGCGTCGGCGGGGGGGGTCGTGTCCCTCTCCGACCAGGAGG
                                                  CGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAGCTCGAACCCCCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGACGGGAGATGCACCTCGGCGCGGGGGGGGTGCGATCGTCCGGCTCCGATCCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTGG 1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGATGGAGATCATCGACTCGCTGGAGACCGAGGCCCGCGGGGGTGTACTCCGGAGCCATCG 1468635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCG 1468452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 301.4; DB 15; Length Pred. No. 4.4e-57; O; Mismatches 936; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             other or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9025608;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25; Gaps
                                                     434
                                                                                                                                                                                                                                                                                                                                                                          254
7417655
                                                                                                          7417595
                                                                                                                                                                                                                 7417535
                                                                                                                                                                                                                                                                                                                        7417475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1468515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1468575
                                                                                                                                                                                                                                       g
                         밁
                                                                                                                                용
                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                       S
                                                                        δ
                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        함. 정
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                         7418663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7418249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7418072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7418012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7417952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7417892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7417776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7417716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7417656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCACGACGACGCCCCGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCACCGGCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCTTCGGCCCCCGGCGCGCGCGCGCCACGACAAGGACGCCTACCTCAAGCGCATCGA 1268
                      CGAGGCCCTCGTCAAG----GTCGAGGACGGGCAGGCGATGGTCCACCCCATCGCGGCAC
                                                                           CGAGCGGTTCCTCACGATCGGCGCCGACGGCGCGTCGAGTCCAAGCCCCATCAAGGGGAC
                                                                                                                                CCCCTCACCGTACATGTACCTCTTCCGCTTCGAGGGCTTCGACGTGGTCGGCTCGTCCCC
                                                                                                                                                                          CCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCC
                                                                                                                                                                                                                                    CTTCGAAACGCCGTGCACGGCAAGCGCGTTGGACGTCTACCGGGTACTGCGGGCGACCAA
                                                                                                                                                                                                                                                                                       CGAGGACATCAAGGAGCGCATCCGGGCGGGCGAGGCGTTCCAGGTCGTCCCCTCCCAGCG
                                                                                                                                                                                                                                                                                                                                                                                           CGAGTGCCTCAAGGAG----ATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACCAACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTCCGCGCCCGAGCCGACCCCCGCCATGGTCTTCGGGATCCCCGAGGCGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGATCTGGCCGTCATGGACCACTGGGAGGGCTCCGTCCTGCTGATCGCCAACGCGATCAA 7418308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ceccarceccriceaccaccaceaaaecrecrecraccrecricecccceacceceee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATCGGCCCCGGCGAGCGACGATCTGAAACTTCCCGAGCTGACCATGCTCCTCACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ċ---TTCACCGGCGGCATGGTCGGCTATCTCGGCTACGACATCGTGCGCCGCCTGGAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGA-----GCTGAAGGCCGAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CANATEGETCCCGCTACTCCTTCGTGGGCGTCCGCTCCGCCCACCCTCACCGAGCGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCCGTCAGCCGCAAACTCCTCGCCGACGGCGACACCCCGGTCGGGCTCTACCGCAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGACCTCGCCCTCGCCCACCGGGCACGGCCCACGGGGCCGACTCCCCCGTACGAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGAGCGACGACGGGTCGTCATGGGCCTGCGGCACCGCGAGAAAGCCCGCTGTGGGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCGCCCTGCGCGCCACCATCGAGGCGCCTGCACACGCCCCACGAGGAGGGCCTGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCGCCCCGAACTGCCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 crecrrecreses acceses en contrator de la contr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCGCCGAGCCCCCGGCACCTTCCTCCTGGAGTCCGCGGAGAACGGCCGCTCGGCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cescesacescaccacerreresacascascascrecercesaaescecerre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGACGCCGACGTGCTCCAAGGACGGCGATTCCGGCGTACCCCGCAGCGGATCAGTAAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccaerrccaccegaerccarcegeaecercreeecegeaearcaregecaacreee
                                                                                                                                                                                  1445
                                                                                                                                                                                                                                       7418602
                         7418719
                                                                              1505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            614
                                                                                                                             7418662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7418368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      854
                                                                                                                                                                                                                                                                                                                                            7418542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7418188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7418131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7417775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
5
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7418422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7418248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7418071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7417951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7417891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7417831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7417715
```

```
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: UF 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JF 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION NUMBER: JF 2001-272697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 8
US-10-156-761-6148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                              Query Match 13.6%;
Best Local Similarity 51.9%;
Matches 764; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 6148, Application US/10156761 Publication No. US20030119018A1 GENERAL INFORMATION:
                                                                                                                                               FEATURE:
NAME/KEY: CDS
LOCATION: (1)..(1479)
:-10-156-761-6148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
                                                                                                                                                                                                                                 ORGANISM: Streptomyces
                                                                                                                                                                                                                                                           TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7419200
572 ACCACCGGGCACGGGGCCACGGGGCCGACGTACGAACTCCACGTGCGCCGCGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCCAGGCGGAGTTCGGCGTCGGCGGGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTCGACTTCGCGGGCGACTCCGACACCGCCATCGCCATCCGCACGGCGCGCTGCTGCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGCTCTACTCCCGGGGCGCTCGGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCCAAGGAGCGCGCGAGCACCTGATGCTCGTCGACCTGGGGCGCAACGATCTGGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAGATCATCGACGAACTGGAGCCGTCCCGGCGGGGGCTGTACGGCGGCTGCGTCGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCACCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTCTGCGAGCCCGGTTCCGTCGAGGTCGTCGACCTTCATGACCATCGAGCGCTACTCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGGCCGCGCGCGCACCCCCGCAGGAGGACCAGGCCCTCGCGGACGACGAGCTGCTGGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTGATGCACATCGTGTCGACCGTGACCGGGGGGGGTCGCGCGGGGGGGCGTACGGCCTTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTCTGCGCGATCGGCTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                    Score 280.8; DB 15; Pred. No. 5.1e-52;
                                                                   Mismatches 687;
                                                                 Indels
                                                                                                   Length
                                                                 21; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7419248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7419079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7419019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7418899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7418839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7418779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       윰
      밁
                              S
                                                                       В
                                                                                                                         Ş
                                                                                                                                                                    밁
                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
    1073
                                           1643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1343 AGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCATCAGCCCCGTTCCCGTACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     362 TGGTCGGCTAICTCGGCTACGACATCGTGCGCCGCCTGGAGAAGATCGGCCCGGCGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65 TCCTCGCCGACGCGACACCCCGGTCGGGCTCTACCGCAAGCTCGCCGCCGAGCGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ഗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCATCCGGGCGGGCGAGGCGTTCCAGGTCGTCCCCTCCCAGCGCTTCGAAACGCCGTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCTCCGACGGCACCACGACCCGGACGCGGCGCCCCTTCTTCAACTACCTGGAGGAGC
      CCGTCGAGGTCGTCGACTTCATGACCATCGAGCGCTACTCGCACGTGATGCACATCGTGT
                                CCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCCGTGCACCAGCTGGTGT
                                                                                      AGCACCTGATGCTCGACCTGGGGGCGCAACGATCTGGGGGCGGTCTGCGAGCCCGGTT
                                                                                                            AGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCT
                                                                                                                                                                                                   TCGGCGCCGACGGCGCGTCGAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGCGGCA
                                                                                                                                                                                                                                                                                                                                         ACCTCTTCCGCTTCGAGGGCTTCGACGTGGTCGGCTCGTCCCCGAGGCCCTCGTCAAGG
                                                                                                                                                                                                                                                                                                                                                                                  CCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGA 1462
                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCAAGCGCGTTGGACGTCTACCGGGTACTGCGGGCGACCAACCCCTCACCGTACATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --ATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACCAACATGGTCACCGCGCCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGCGCGCCACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAG- 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTCGCGCGC-----GGTCGCGCAGCCCCCCCGCCCTCCCGCCCTCCGAACTCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGGCGTCGACGAGGCCTACGCGGÁCGCGGTCGCCCCGCCTCGACGCCATGGAGGCGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCACTGGGAGGGCTCCGTCCTGCTGATCGCCAACGCGATCAACCACCACCACCTCGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCAGGAAGGCTGCTGCCTGCTGGCCCTCGACCGCCGGGGGCCACGACGACGACGGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGACGATCTGAAACTTCCCGAGCTGACCATGCTCCTCACCAGCGATCTGGCCGTCATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGTCGGCTACCTCGGCTACGA-----GCTGAAGGCGGAGACCACCGGCGACCCCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCATCGAGGCGCTGCACACGCCCCACGAGGAGGGCCTGCCGCC---TTCACCGGCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCTCGAACGCCGACGGGTCCCCGTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGGCACCCCGCCCGTGGGCGTCCCCACGGACGGCGACCCGCTCGCCCCCTGCGCGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTTCGTGGGCGTCCGCTCCGCCGCCACCCTCACCGAGCGTGACGGGCAGGCGCACTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCGCGGCCCGCCCGAGTACCTCACCTACCGCGTCGCCGACGGCGTCGTCTCCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCACCTTCCTCCTGGAGTCCGCGGAGAACGGCCGCTCGGCGTTCAAATGGTCCCGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCCGCAGGAGGACCAGGCCCTCGCGGACGAGCTGCTGGCCGACCCCAAGGAGCGCGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCTCGAGACGTTCCGCAAGCTGGCCACCGACCGCCGTGTCATTCCCGTCAGCCGCAAAC
                                                                                                                                                                                                                                                                                                1522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1342
      1132
                                           1702
                                                                                      1072
                                                                                                                               1642
                                                                                                                                                                      1012
                                                                                                                                                                                                                1582
                                                                                                                                                                                                                                                                                                                                         895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124
                                                                                                                                                                                                                                                         952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64
```

á

밁 δ Ś 밁

B

밁

S

5

유 5 밁

> 2003 1373 1943 1313 1883 1253 1823 1193 1763 1133 1703

```
RESULT 9
US-10-716-803-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 9, Application US/10716803
Publication No. US20040229236A1
GENERAL INFORMATION:
                                                                                                                       APPLICATION NUMBER: US/10/716,803
FILING DATE: 20-Nov-2003
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/635,359
FILING DATE: 09-AUG-2000
APPLICATION NUMBER: US 09/231,818
FILING DATE: 15-JAN-1999
APPLICATION NUMBER: US 08/403,852
FILING DATE: 10-MAY-1995
APPLICATION NUMBER: PCT/FR 93/00923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS:
ADDRESSEB: Finnegan, Henderson, Farabow,
STREET: 1300 I Street, N.W., Suite 700
                                                                                                                                                                                                                                                                                                                           ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
                                           FILING DATE: 25-SEP-1993
APPLICATION NUMBER: FR 92/11441
FILING DATE: 25-SEP-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Washington
STATE: D.C.
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TAAAGGCCCGCGCCATGGTCACCGCCCTCGAC
        NAME: Arrigo, Salvat. REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACAAGGCGGCGGCGGTCCTGCGCGCGGTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGTCGGCGGGGGGATCGTGTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGGACGGCCAGGCGGAGTTCG 1942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGACCGTGACCGGGCGGGGCGGGGGGCGTACGGCCTTCGACGTGCTGACGGCCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGGCGGGCGCCGGCATCGTCGCGGACTCGGACCCGAGGACGACGACGAGTGCCGCA 1432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTCCGACACCGCCATCGCCATCCGCACGGCGCTGCTGCCGCGACGGCACGGCGTACGTGC 1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGAGCCGTCCCGGCGGGGGCTACGGCGGCTACCTCGACTTCGCGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTCGGATGGTTCGCCCTCAGCGGCG 1882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCCGGCACCCTCTCCGGCGCGCGCCAAGCCCCGCGCCCTGCAGATCATCGACGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCACCGCCTGCGTACGCGCCGCCT 1762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGCCGCACCATGGAGATCATCGACCGCC 1822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ဝှု
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Debusache, Laurent
De Crecy-Lagard, Valerie
INVENTION: Polypeptides Involved in The
Biosynthesis Of Streptogramins,
Coding For These Polypeptides Ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Blanche, Francis
Crouzet, Joel
Jacques, Nathalie
Lacroix, Patricia
Thibaut, Denis
Zagorec, Monique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Blanc,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Veronique
        Salvatore J.
VUMBER: 46,063
                                                                                                                                                                                                                                                                                                                                                    Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2034
                                                                                                                                                                                                                                                                                                                                                    #1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Garrett & Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   And
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleotide Sequences 
nd Their Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1192
    -- -- --
                                                                               RESULT 10
US-10-282-122A-30135
                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-716-803-9
Sequence 30135, Application US/10282122A
Publication No. US20040029129A1
GENERAL INFORMATION:
APPLICANT: Wang, Liangsu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 392; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: 9: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear MOLECULE TYPE: CNA HYPOTHETICAL: NO ANTI-SENSE: NO ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: CDS
LOCATION: 61. 645
OTHER INFORMATION: /product=
SEQUENCE DESCRIPTION: SEQ ID NO: 9:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 408-4000
TELEFAX: (202) 408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                              611
                                                                                                                                                                                        536 AGATCATGGCCAACTTCCGCGACCTCGCCCT
                                                                                                                                                                                                                                                551
                                                                                                                                                                                                                                                                                      476
                                                                                                                                                                                                                                                                                                                                                                   416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          311
                                                                                                                                                                                                                                                                                                                             491
                                                                                                                                                                                                                                                                                                                                                                                                           431
                                                                                                                                                                                                                                                                                                                                                                                                                                                  356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 71 TGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N
                                                                                                                                                                 GGATGCTCGCCAACTTCCGCGACCTGTCCCT
                                                                                                                                                                                                                                                                                    AGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGG
                                                                                                                                                                                                                                                                                                                           CCGACCTGCGCGCCACGCCCACACCGCCGACGGGCAGCTGATGGCCGTCGCCCACCGCC
                                                                                                                                                                                                                                                                                                                                                                 ACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGTCGTCATGGGCCTGCGGCACCGCG
                                                                                                                                                                                                                                                                                                                                                                                                         ACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCTCCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGAACCCTTTCACGGCCGCACCAGCGACATCCGCCACGACGGCCAGGGCCTGTTCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cegaacccarecaceecceecrorcceaecrecacecaccaceaecacercricceec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGTGTGCCTGGCCACGCCTGTGCCTGCTCGCCGGCCGCCGCCGTCCACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGTCTGCCTCGGCCACCAGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGACACCGACCTGGGCCTCAGCCGCCGGGTGATCACCGAATGGGACCTGCCGCTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGAACGGGACTTCGGAATCAGCCGCCGGGGGATCACCGACAGCGGCCTGCCCGTCCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGTCGAG-----GACTTCGACGCGATCGTCGTGTTCCCCGGGCCCCGGCAGCCCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGAGGTGAACGGCGCCGCTCCGCTCGTCGTCCGCAACGACGACACCCGCACCTGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGAGGCCACCGGGCAACCCCCCGTCGTCGTGCCCAACGACGCCGACTGGTCGCCGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAAACCTGTTCCAGTACATCG
                                                                                                                                                                                                                                              ACCTGCCCGCTTCGGCGTGCAGTTCCACCGCGAATCGATCAGCAGCGAACACGGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCTGGCGCCGGCGACTTCGACAACGTCGTCGTCTCACCCGGCCCCCGCCACCCCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 645 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: S.pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: 03806:0054-04000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ,
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 272.2; DB 20;
Pred. No. 4.4e-50;
0; Mismatches 173;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *gene
                                                                                                                                                              641
                                                                                                                                                                                                      566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      papA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

250 175 190 121 130 61

610 535 550 475 415 430 355 370 295 310 235

490

TITLE

```
á
                                        밁
                                                                      Ś
                                                                                                                  В
                                                                                                                                                    Ś
                                                                                                                                                                                              뮍
                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TYPE: DNA
; ORGANISM: Pseudomonas
US-10-282-122A-30135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR PELICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR FILING DATE: 2000-09-09
PRIOR FILING DATE: 2000-09-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity Matches 487; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn version 3.1 SEQ ID NO 30135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: Identification of Essential Genes in Microorganisms FILE REFERENCE: ELITRA.034A CURRENT APPLICATION NUMBER: US/10/282,122A CURRENT FILING DATE: 2003-02-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Remaining Prior Application data removed NUMBER OF SEQ ID NOS: 78614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/269,308 PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 1362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/267,636 FILING DATE: 2001-02-09
                                                                                                                                                        1467
                                                                                                                                                                                                                                1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/257,931 FILING DATE: 2000-12-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/253,625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/242,578 FILING DATE: 2000-10-23
                                                                                                                                                                                                                                                                                                 1347 GACGGCCCTGCCGCTCTACTCCGCGCCGCGCCATCAGGCCCCGTACGGCGCCCT 1406
                                                                                                                                                                                                                                                                                                                                                                                         1287
                                                                            1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1227 CCGCGCGCCCACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGAT
                                                                                                                    768
                                                                                                                                                                                                708
                                                                                                                                                                                                                                                                           648
CCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGT
                                                                                                                                                                                                                                GCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGG
                                                                                                                                                                                                                                                                                                                                                                                     CGAGGAGGACATGGCGCTGGCGGCGTCGCTGCTGGCCAGCCCCAAGGACCGCGCGGAAAA
                                                                        GGAGGAGGACGAGCGGCTCCGCGCCGACCTGGCCGGGCCGGGAGAAGGACCGGGCCGAGAA 1586
                                                                                                                                                      CGCCGACGGCGCGTCGAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGGGGCGCACCGC
                                                                                                                                                                                          CCTGCGACTGGCCGACGGCGGATCCTCAGCCTGTCGCCGGAGCGCTTCCTCAAGCTCGG
                                                                                                                                                                                                                                                                         CTCGCCGTGGCCGATCGCGCCCTGCGCGAGGCCTGCCCGACGCCGTTCTCCGGCTA
                                                                                                                                                                                                                                                                                                                                                 CCAGGCAGGCGACTGCTACCAGGTGAACTATAGCCAGGCGCTTCCAGGCCGCTTGCAGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                             CCGACGGAGCATCAGCGCATCCGACTATCGGCAGGCGATCCGCCGCATCCAGGACTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zamudio,
Malone, (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Yamamoto, R. Forsyth, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Carr, Grant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wall, Daniel
Trawick, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zyskind, Judith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ohlsen, Kari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Malone, Cheryl
Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Carlos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 270; DB 17;
Pred. No. 1.2e-49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches 340;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      See File Wrapper or PALM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1362;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                1466
                                                                                                                                                                                                                                                                                                                                                                                         1346
                                                                                                                                                                                                                                                                       707
                                                                                                                                                                                                                                                                                                                                                   647
                                                                                                                                                                                                                                                                                                                                                                                                                                 587
                                                                                                                                                                                            767
```

```
APPLICANT: MOMICHAEL, JOHN CALHOUN
APPLICANT: ZAGURSKY, ROBERT JOHN
APPLICANT: RUSSELL, DAVID PARRISH
APPLICANT: FLETCHER, LEAH DIANE
ITILE OF INVENTION: ALLOIOCOCCUS OTITIDIS OPEN READING FRAMES (ORFS) ENCY
ITITLE OF INVENTION: POLYPEPTIDE ANTIGENS, IMMUNOGENIC COMPOSITIONS AND 1
FILE REFERENCE: AM100780 L2
CURRENT APPLICATION NUMBER: US/10/501,282
CURRENT FILING DATE: 2004-07-09
PRIOR APPLICATION NUMBER: 60/33,777
PRIOR PILING DATE: 2001-11-29
PRIOR FILING DATE: 2001-11-18
PRIOR FILING DATE: 2002-11-18
                                                                    밁
                         S
                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                  US-10-501-282-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-501-282-17
                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Pa
                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 17, Application US/10501282 Publication No. US20050203280A1
                                                                                                                                                                                Best Local Similarity
                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: PCT/US02/36123
PRIOR FILING DATE: 2002-11-25
NUMBER OF SEQ ID NOS: 6653
                                                                                                                                                                                                                                                              FEATURE:
NAME/KEY: CDS
LOCATION: (22)..(2043)
                                                                                                                                                                                                                                                                                                                         LENGTH: 2046
TYPE: DNA
ORGANISM: Alloiococcus otitidis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1185 GGACAGCTCGATCGCCATCCGCACCCTGCTGGTCAGGGACGGCCAGGTCAGTTGCTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1647 CCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGAC 1706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 945 ACGGGTACCGGAGCTGTTTGCCCTTGGAAAGCTATCCCAACGTGCATCACCTGGTGAGCAG
                                                                                                                                                           999;
                           61
                                                                  22 ATGAAGTCACTCATTATCGATAACTATGATTCTTATACTTACAACTTATACCAGCTTATT
                                                                                                                                                                                                                                                                                                                                                                                                                            PatentIn
GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                           ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    egecceceareercacecccrceaceecaececcrreereereececcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGTCCGGGTGCTGCTGGAAACCCTGGAAGGAATGGCCGGGACAGCGTCCC 1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCGGCGCATCGTCGCCGACTCGCACTGGGAGGACGAGTACCAGGAAACCCCTGGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCGGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGT 1946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCGAGCCGACGCGGCATCTACTGCGGCAGCCTGTTCTACCTCGACGTGCGCGACGAT 1184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCCCCGGATGGTTCGCCCTCAGCGGCGCCGC 1886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGA 1826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTCACCGGCGAACTGGCGCCGGGCAAGGACGCCCTCGACCTGCTGGAAGGCAGCTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATCCGGGGACGCCTGCGGCCACCAGCACCGCCGCCTGCGTACGCGCCGCCTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGATGATCGTCGACCTGCTGCGCAACGACATCGGACGCAGTTGCCCAACCTGGCAGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCGGCTCGATCACCGGCGCGCCGAAGATTCGCGCCATGCAGATCATCGACGAGCTGGA
                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                              version 3.2
                                                                                                                                                                              13.0%;
                                                                                                                                                         ٥,
                                                                                                                                                    Score 267.2; DB 22; Length Pred. No. 4.5e-49; 0; Mismatches 963; Indels
                                                                                                                                                                                                       2046;
                                                                                                                                                         84;
                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AND USES 7
                                                                    82
                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          THEREOF
```

178 142

121 82

```
TTCCTCTTCGCCGACCGCCATCGCCCTCGACCAGGAAGGCTGCTGCTGCTGCTG
                                                                                                                                                                                                                                                  CTCTACGATCAATTGGCCAAAATTGATGACCAAGTACTTTGGCTCGACTCCAGCAAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCAAGCCCATCTATGGGGTCCAATTCCACCCGAATCCATTGCCACCCAGTATGGGGAA
             GCCCTCGACCGCGGGCCACGACGACGGCGCCCGCGCCTGGCTGCGGGAGACGGCCGAG
                                                                                                                                                                                                                                                                                                     TATGAGCCGGCCTTGCCCTTTGACTTTCAGCTAGGCTATATTGGCTATATCGGCTATGAG
                                                                                                                                                                                                                                                                                                                           GTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTANAATACGATGTCGACCAAAAAGAAGTGAAAAAACAAGATAGCCAGTCCGCAGCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCGAAGGCGCCTCGCGCTTCCTCCTCCGCGACGACCGCCGGCCCGCTCGCCGAGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCGGGCACGGGCACGGGCCCACGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCCGGCGAGGACGTCTTCCGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTCTGCCTCGGCCAGCGAGCGATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCG
                                             ACCCTCACCGGCCTGGCCGTCCGGCCCCGGCCGACCCCCGCCATGGTCTTCGGG
                                                                                                                                                        TTTACTTATTGTGACCGGCCTTGGTCTATGACCACCAGGAAGAGGACCTTTACTTCCTC
                                                                                                                                                                                                                               GTCAAAAAAGATACAGTTCAAGTCCACAACAAGCACCAGTCACCCTATCCGGATGCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                            CGGACGCGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGCCTGGCTTGTCACGGTTTTCCATCTTTGGCATGGCTGGACCAAAGCGGGGCCACACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TACTATAACCAATCCAGCCTTTATTATGAAAAAGTTCCGGGAACTAGGGACAGCCAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGACTCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAGAATATTCAAATCGATGCCAAAACCGATGATGGAATTGTCATGGCCCTGTCCCACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGGTCGTCATGGGCCTGCGGCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCCCCTCGCCGTTCACCGCGTGCCTACCACTCCCTGG----CCGCCACCGACCTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCCCCATGCATGGTCGGCAGAGTTCGGTCTACCATAATGGGAAAAATATCTTTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTTGCCTGGGCCACCAGGGCATTTATTATTATAACGGTGGCAACTTAGTGGGGGCTGAT 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAACGGGACTTCGGAATCAGCCGCCGGGGGATCACCGACAGCGGCCTGCCCGTCCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGTCGA----GGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGGCAGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACAAGGACTTCGGCTTGTGCCGGCAAGTAATTGAAAAGCTTGACAAGCCTATCTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTATTGGATCTCGACTTTGATAATGTCATTATTTCACCGGGCCCGGTAGTCCGGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGAAGGTCACAGGGAAAGAGCCCATGGTGATAAAAATGACCAGATGACCTACCAAGAA
                                                                                                                                                                                                                                                                                                                                                                          - GCTTCCAGACTGACATCTTTTCTTACTTAAAAGCCAACCGACCAAAATGGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----TATGGCCTTGTGCCAGGAC
                                                                                  GGATGAC
                                                                                                                                                          1074
                                                                                                                                                                                           1071
                                                                                                                                                                                                                               1014
                                                                                  1089
                                                                                                                                                                                                                                                                 1011
                                                                                                                                                                                                                                                                                                   954
                                                                                                                                                                                                                                                                                                                                       954
                                                                                                                                                                                                                                                                                                                                                                            894
                                                                                                                                                                                                                                                                                                                                                                                                                                                  837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  297
RESULT 12
US-10-501-282-6651/c
US-10-501-282-6651, Application US/10501282
Sequence 6651, Application US/10501282
; Publication No. US20050203280A1
; GENERAL INFORMATION:
APPLICANT: ROMICHAEL, JOHN CALHOUN
; APPLICANT: ZAGURSKY, ROBERT JOHN
; APPLICANT: RUSSELL, DAVID PARRISH
; APPLICANT: FLETCHER, LEAH DIANE
; TITLE OF INVENTION: ALLOIOCOCCUS OTITID
; TITLE OF INVENTION: POLYPEPTIDE ANTIGE!
                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                              뮹
                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ď,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                             1867
                                                                                                                                                                                                                                                1987
                                                                                                                                                                                                                                                                                                                                                                                                                               1912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1192
                                                                                                                                                                                                                                                                                  GACGGC
                                                                                                                                                                                                                                                CAAGCC
                                                                                                                                                                                                                                                                                                                  GATCCTGAAGAAGATTTGATGAAGTTGTTTTAAAAAGCTAAGGGGGCCTTGTCCGCCTTG
                                                                                                                                                                                                                                                                                                                                                  GACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                            ĠĠĠĀĊŦĀŤŦĠĠĊŤŦŦŤŦĀĠĊĊĀĀĊĀĀŦŦĊĊĀĊŦĀŦĀĠĀĊŦŦĊĀĀĊĀŤĊĠŦĊĀŤĊĊĠĠĀĊĊ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGGCGCTCGGATGGTTCGCCCTCAGCGGCGCCGACCTCAGCATCGTCATCCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAGAAGCGCACCATGGAGATCATCGACCGCGTGGAGGAAGGCCCCCCGGGGCGTCTACTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCAGCACCGCCGCCTACGCGCCGCCCCTTCCCCGGCCGCCCCATGACCGGCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGTGTGGTGGAAGCAAGGCAAGCATCGGCCTGGGGGGTGCGATTGTCATGCTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAAAAAGAACCCTGGAAATTATTGATGACTTAGAAGCAGTTCCCAGAGGGATCTATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTAGATGTGGTTGAAGTGTTAGAAAACACCTTCCCGGGCGGCGCTCCATGACTGGGGCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGACCTACTCCACCCACCAGCTGGTTÁCCACGGTTTCAGGCCGGGTCAAAGAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCATCAAGGGGACGGTCAGACGGGGGACAGATGACCAAGAAGACCAAGACTTGATAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTTCCTCTTCCATGGAGCGTTTTATTAATGTCGACAAGGACCGGGTTGTGACCACTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGCGCCAGGAAAGTCCCGGTCAGTACTCTGCCTTTTTGCCTTTAGATGATTTTCAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGCTTGACCAACCGGCTGGATATTGAGGGTCAGATTGATGGCCTCGCTTATTACAAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCCTGACCAACATGGTCACCGCCGCCGACCGACGGCGACGGCCCTGCCGCCTCTACTCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATATCAAAGACATTGAAACCATCCAAGACCTGATCAAGGCTGGGGAAAGTTATGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGACCAAGAGGCAAGCATTCCCACGACTGGCCTTCG---TCAAAGACAAAGCAGCC
                                                                                                                                                                                                                                                                                2037
         OTITIDIS OPEN READING FRAMES (ORFS) ENCODING ANTIGENS, IMMUNOGENIC COMPOSITIONS AND USES
                                                                                                                                                                                                                                                                                                                                                      2031
                                                                                                                                                                                                                                                                                                                                                                                                                             1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1311
                                                                                                                                                                                                                                                                                                                                                                                           1926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1206
         THEREOF
```

밁 ş 밁 δ 밁 δ 문 S 밁 S 망 ঠ B S 밁 S 밁 ક 망 5 밁 ð 밁 5 문 á 밁 ঠ 당 Ś В Ş 밁 8 8 δ 밁

1090

1132 1075 1072 1015 1012

955

955 895 838 835 718

715 658 655 598 595 562 502 475 442

AAAATGATGGAAAACTT

382 358 322

```
; FILE REFERENCE: AM100780 L2
; CURRENT APPLICATION NUMBER: US/10/501,282
; CURRENT FILING DATE: 2004-07-09
; PRIOR APPLICATION NUMBER: 60/333,777
PRIOR FILING DATE: 2001-11-29
; PRIOR APPLICATION NUMBER: 60/426,742
; PRIOR APPLICATION NUMBER: 607/426,742
; PRIOR FILING DATE: 2002-11-18
; PRIOR APPLICATION NUMBER: PCT/US02/36123
; PRIOR APPLICATION NUMBER: PCT/US02/36123
; PRIOR FILING DATE: 2002-11-25
; NUMBER OF SEQ ID NOS: 6653
; SOFTWARE: Patentin version 3.2
; SEQ ID NO 6651
; LENGTH: 1754382
; TYPE: DNA
; ORGANISM: Alloiococcus otitidis
US-10-501-282-6651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                 밁
                                                                                                                                                                         S
                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                 뭠
                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                   문
                                         ર્
                                                                                                              5
                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                      7447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7747
                   7111
                                                                                                                                                  7231
                                                                                                                                                                                                                      7267
                                                                                                                                                                                                                                                                                  7327
                                                                                                                                                                                                                                                                                                                                                    7387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7807
                                                                                                                                                                                                                                                                                                                                                                                     415
                                                                                                                                                                                                                                                                                                                                                                                                                                                     358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                  715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          μ
                                                                                                                                                                                                                                       GAGATCATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCGGGCACGGCCACGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCACAACCTGTTCCAGTACATC
                   GAGCCTGGCTTGTCACGGTTTTCCATCTTTGGCATGGCTGGACCAAAGCGGGGCCACACC
                                                                                                                                                                                                                                                                                                       GAGAAGCCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTTGCCTGGGCCACCAGGGCATTTATTATTATAACGGTGGCAACTTAGTGGGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGAAGTCACTCATTATCGATAACTATGATTCTTATACTTACAACTTATACCAGCTTATT
                                                CTCGAAGGCGCCTCGCGCTTCTCCTTCGCGACGACCGCGGCCCGCCTCGCCGAGTAC
                                                                                                                  TACTATAACCAATCCAGCCTTTATTATGAAAAAGTTCCGGGAACTAGGGACAGCCAAGAC
                                                                                                                                                                                ACCAAGCCCATCTATGGGGTCCAATTCCACCCCGAATCCATTGCCACCCAGTATGGGGAA
                                                                                                                                                                                                                                                                                                                                                    GAGAATATTCAAATCGATGCCAAAACCGATGATGGAATTGTCATGGCCCTGTCCCACAAG
                                                                                                                                                                                                                                                                                                                                                                       GACGAGCTCGAACCCCTCGCCTGGAGCGACGACGGGTCGTCATGGGCCTGCGGCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                      CTCCCCTCGCCGTTCACCGCCGTGCGCTACCCACTCCCTGG----CCGCCACCGACCTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCCCCATGCATGGTCGGCAGAGTTCGGTCTACCATAATGGGAAAAATATCTTTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAACCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCTGCCTCGGCCACCAGGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACAAGGACTTCGGCTTGTGCCGGCAAGTAATTGAAAAGCTTGACAAGCCTATCTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAACGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTATTGGATCTCGACTTTGATAATGTCATTATTTCACCGGGCCCCGGTAGTCCGGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cccercea---egacrirceacecearicererererececegececegeagececegacege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGAAGGTCACAGGGAAAGAGCCCATGGTGATAAAAAATGACCAGATGACCTACCAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13.0%;
ilarity 48.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 267.2; DB 2
Pred. No. 1.6e-49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 963; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 22;
                                                                                                                                                                                                                  -TATGGCCTTGTGCCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1754382;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84; Gaps
                                                                                                                                                                                  654
                                                                                                                                                                                                                  7232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7748
                   7052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                             뫄
                                                       S
                                                                                                뫄
                                                                                                                        S
                                                                                                                                                           맑
                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                뫄
                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                     6442
                                                                                                                                                                                                                                                                 1612
                                                                                                                                                                                                                                                                                                                                   1552
                                                                                                                                                                                                                                                                                                                                                                                                   1492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCCCGAGGCGGCGGCGCGCGCGCGCGCGCGCGCGACGACAAGGACGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGAAGGCGGAGAC---CACCGGCGACCCGCACCGGTCCCCGCACCCCGACGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TATGAGCCGGCCTTGCCCCTTTGACTTTCAGCTAGGCTATATTGGCTATATCGGCTATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGACGCGGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTAAAATACGATGTCGACCAAAAAGAAGTGAAAAAACAAGATAGCCAGTCCGCAGCAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCACCTACCGCCGCCGACGGCGTCGTCTCCGTCCGCGGCTCCGACGGCACCACGACC
GGGGCGCTCGGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACC
                                                               AAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGGCGTCTACTCC
                                                                                                                     ACCAGCACCGCCTGCGTACGCGCCCCTTCCCCGGCGGCTCCATGACCGGCGCGCCC
                                                                                                                                                                                     GAGACCTACGCGCCCGTGCACCAGCTGGTGTGTGCACCATCCGGGGACGGCTGCGGCCCGGC
                                                                                                                                                                                                                                                       AACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTG
                                                                                                                                                                                                                                                                                                    GGCCTCCGCAGTGAAGAGAAAACCAAGGCAGAAAACCTGATGATTGTCGACCTCTTGCGC
                                                                                                                                                                                                                                                                                                                            GACCTGGCCGGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGC
                                                                                                                                                                                                                                                                                                                                                                    CCCATCAAGGGGACGGTCAGACGGGGGACAGATGACCAAGAAGACCAAGACTTGATAGAA
                                                                                                                                                                                                                                                                                                                                                                                                 CTTTCCTCTTCCATGGAGCGTTTTATTAATGTCGACAAGGACCGGGTTGTGACCACTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTGCGCCAGGAAAGTCCCGGTCAGTACTCTGCCTTTTTGCCTTTAGATGATTTTCAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGCTTGACCAACCGGCTGGATATTGAGGGTCÁGATTGATGGCCTTGCTTATTACAAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCCTGACCAACATGGTCACCGCGCCGACCGACGGCGACGGCCCTGCCGCTCTACTCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TATATCAAAGACATTGAAACCATCCAAGACCTGATCAAGGCTGGGGAAAGTTATGAAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ТАССТСААСССАТССАССВАСТСССТСААССВАТССССААССССВАСТССТАССВАСАТС
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGACCAAGAGGCAAGCAAGACTTCCCCACGACTGGCCTTCG---TCAAAGACAAAGCCAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCTCGACCGCCGGGCCACGACGACGGCGGCCCGCCCTGGCTGCGGGAGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTACTTATTGTGACCGGGCCTTGGTCTATGACCACCAGGAAGAGGACCTTTACTTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCCTCTTCGCCGACCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTGCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCAAAAAAGATACAGTTCAAGTCCACAACAAGCACCAGTCACCCTATCCGGATGCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCGCCCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAAA----GCTTCCAGACTGACATCTTTTCTTACTTAAAAGCCAACCGACCAAAATGGCCT
                                AAAAAAAGAACCCTGGAAATTATTGATGACTTAGAAGCAGTTCCCAGAGGGATCTATTCT
                                                                                                  GAGACCTACTCCACCCTCCACCAGCTGGTTACCACGGTTTCAGGCCGGGTCAAAGAAGAC
                                                                                                                                                                                                                                    -GGATGAC
                                                                                                                                                                                                                                                                                                                                                                     6323
                                                                 1851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6755
                                                                                                                                                                                                                                                                   1671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6815
   1911
                                                                                                  6083
                                                                                                                                 1791
                                                                                                                                                                    6143
                                                                                                                                                                                                   1731
                                                                                                                                                                                                                                    6203
                                                                                                                                                                                                                                                                                                     6263
                                                                                                                                                                                                                                                                                                                                   1611
                                                                                                                                                                                                                                                                                                                                                                                                      1551
                                                                                                                                                                                                                                                                                                                                                                                                                                       6383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                834
```

```
FILE OF INVENTAGE
FILE REFERENCE: 249-125
CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT APPLICATION NUMBER: D9/377484
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: PATENTIN VET. 3.0
SEQ ID NO 1111
LENGTH: 1860
                                                                                                                                                                                                                                              밁
                                                                                  밁
                                                                                                                         ঠ
                                                                                                                                                                밁
                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                            á
                                           5
        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; TYPE: DNA
; ORGANISM: Corynebacterium
US-09-738-626-1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
US-09-738-626-1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1111, Application US/09738626
Publication No. US20020197605A1
GENERAL INFORMATION:
APPLICANT: NAKAGAWA, SATOSHI
APPLICANT: MIZOGUCHI, HIROSHI
APPLICANT: ANDO, SEIKO
                                                                                                                                                                                                                                                                                                                                                                                                      Matches 467;
                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: YOKOI, HARUHIKO
APPLICANT: TATEISHI, NAOKO
APPLICANT: SENCH, AKIHIRO
APPLICANT: IKEDA, MASATO
APPLICANT: OZAKI, AKIO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                       1362
                                  1482 CGAGTCCAAGCCCATCAAGGGGACCCGCCCCCGGGGCGCACCGCGGAGGAGGACGAGCG 1541
                                                                                                                                                                                                                                                              1302 GTACGAGATCTGCCTGACCAACATGGTCACCGCGCGCGACCGAGCGACGGGCGACGGCCTGCCGCT 1361
                                                                                                                                                                                                                                                                                                                   1059 CAAAGATGAGTATCTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGCGAATC
                                                                                                                                                                                                                                                                                                                                                      1242 САЛОБА ССТАССТСАЛОСОСАТСВАСОВСТВЕТСТАЛОВАБАТССВЕЛАСОВСЕЛОТЕ 1301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5842 CAAGCC 5837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2032 GACGGC 2037
GGAATCAAAGCCCATTAAAGGCACCAGGCCGCGTGGGCGAACAGCGCGCAAGAAGACCCAAGA 1358
                                                                                                      ACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCCGACGGCGGCGT 1481
                                                                                                                                                         CTATCTAGCACTGCGTGGGGCCAATCCCCACCGCATATGGTGCGTATCTTCAGCTGGGGGA
                                                                                                                                                                                                CTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGA 1421
                                                                                                                                                                                                                                       GTATGAAATCTGCCTGACCACAAAACTTCAGGGCACCACTGATGTGGCCCCCTCTGGCTGC 1178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACCAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCCATGGTCACCGCCCTC 2031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATCCTGAAGAAGTTTGATGAAGTTGTTTTAAAAAGCTAAGGGGGCCTTGTCCGCCTTG 5843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGGCGGGGGGGATCGTGTCCCTCTCC 1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTGTGGTGGAAGCAGACAAGGCAAGCATCGGCCTGGGGGGGTGCGATTGTCATGCTATCT 5903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGACTATTGGCTTTTTAGCCAACAATTCCACTATAGACTTCAACATCGTCATCCGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OCHIAI, KEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HAYASHI, MIKIRO
                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                    12.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    glutamicum
                                                                                                                                                                                                                                                                                                                                                                                               Score 266.8; DB 9; Pred. No. 5.6e-49; 0; Mismatches 312;
                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1860;
                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                               υ
                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                            1238
                                                                                                                                                                                                                                                                                                                   1118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5963
```

```
Sequence 25, Application US/10494675

Publication No. US20050019877A1

GENERAL INFORMATION:
APPLICANT: Zelder, Oskar

APPLICANT: Pompejus, Markus
APPLICANT: Pompejus, Markus
APPLICANT: Klopprogge, Corinna
APPLICANT: Klopprogge, Corinna
APPLICANT: Haberhauer, Gregor

TITLE OF INVENTION: Genes coding for metabolic pathway pro
FILE REFERENCE: BGI-163US
CURRENT APPLICATION NUMBER: US/10/494,675
CURRENT FILING DATE: 2004-05-04
PRIOR APPLICATION NUMBER: PCT/EP02/12141
PRIOR APPLICATION NUMBER: DE 101
PRIOR FILING DATE: 2001-11-05

NUMBER OF SEQ ID NOS: 164

ORGANISM: Corvuebacterium Glutamicum
ORGANISM: Corvuebacterium Glutamicum
ORGANISM: Corvuebacterium Glutamicum
                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-494-675-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                 Query Match
Best Local S
Matches 467
                                                                                                                                                                                         FEATURE:
NAME/KEY: CDS
LOCATION: (101
                                                                                                                                                                          OTHER INFORMATION:
                                                                                                                                                                                                                                               ORGANISM: Corynebacterium glutamicum
1242 CAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1782 CGGCGCGCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1836 GA 1837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1962 GTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1716 GATCAGAACTCTCGTCATCCAGAACAATCACGTGGAGTACGGAGTGGGCGGTGCACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1902 CATCCGCACCATCGTGCTGGCCGACGGCCAGGCGAGTTCGGCGTCGGCGGGGGGGATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1656 TATTTACTCAGGTGGCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1842 CGTCTACTCCGGGGCGCTCGGATGGTTCGCCCTCAGCGCCGCCGCCGACCTCAGCATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1662
                                                                 al Similarity
467; Conserv
                                                                                                                                                                                             (101) .. (1975)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CA 2023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCTCTGTCTGATCCGGAGGCTGAGTGGGAGGAAATCCGCGTTAAATCACGGCCTCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TEGTECCCAAAGCTECECACCATEGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        eceecceecaccaecaccecciecetacececciecerrecececcececececcareac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTCGACGTCGAAACCTACGCCACAGTCCACCAACTTGTCAGCACCGTCTCTGCAGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTGGTCCGCAACGACTTAGCCCGCGCGCGCTTTGCCCACCACTTAAAACATCCAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AATCATTGCTGAGCTGCGCAGTAATCCTAAAGATCGTGCAGAAAACTTGATGATCGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTCCGCGCGACCTGGCCGGGCCGGGAGAAGGACCGGGCGAGAACCTGATGATCGTCGA 1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGCCACG---CAGTCCGATTGAGTGCGTGCGCGCAGCATTCCCCGGTGGTTCGATGAC
                                                                   Conservative
                                                                                                                                                                       RXA00579
                                                                                  12.9%;
                                                                 <u>.</u>
                                                               Score 266.8; DB 21; .Pred. No. 5.5e-49; 0; Mismatches 312;
                                                               Indels
                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        proteins
                                                                                                        2005;
                                                             ω
--
                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1661
```

```
Sequence 1, Application US/09738626
Publication No. US20020197605A1
GENERAL INFORMATION:
APPLICANT: NAKAGAWA, SATOSHI
APPLICANT: MIZOGUCHI, HIROSHI
APPLICANT: ANDO, SEIKO
APPLICANT: ANDO, SEIKO
APPLICANT: YOKOI, HARUHIKO
APPLICANT: TATEISHI, NAOKO
APPLICANT: TATEISHI, NAOKO
APPLICANT: SENOH, AKIHIRO
APPLICANT: SENOH, AKIHIRO
APPLICANT: IKEDA, MASATO
APPLICANT: OZAKI, AKIO
ITILE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-125
CURRENT APPLICATION NUMBER: US/09/738,626
                                                                                                                                                                                                                                                                            RESULT 15
US-09-738-626-1
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                   1891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1294
                                                                                                                                                                                                                                                                                                                                                1951 GA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGCGATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TATTTACTCAGGTGGCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGT
                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                 TGCTCTGTCTGATCCGGAGGCTGAGTGGGAGGAAATCCGCGTTAAATCACGGCCTCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCCGCGCCATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTCTACTCCGGGGGCGCTCGGATGGTTCGCCCCTCAGCGGCGCCGACCCTCAGCATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGCCCGGCACCAGCACCGCCGCCCTGCGTACGCCGCCCTTCCCCGGCGGCTCCATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTCCGCGCCGACCTGGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACCTCTATTTTGAGTTCCTCGCCGGAGCGGTTCATCACCATTGATTCGGCAGGGTATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGGTACGGCGCCCTGCCTCGAGTTCCCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTATGANATCTGCCTGACCACAAAACTTCAGGGCACCACTGATGTGGCCCCTCTGGCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATCAGAACTCTCGTCATCCAGAACAATCACGTGGAGTACGGAGTGGGCGGTGCACTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGTGCCCCAAAGCTGCGCACCATGGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTCGACGTCGAAACCTACGCCACAGTCCACCAACTTGTCAGCACCGTCTCTGCAGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTGGTCCGCAACGACTTAGCCCGCGCGCGCTTTGCCCCACACTTAAAACATCCAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCACGTGCCCCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATCATTGCTGAGCTGCGCAGTAATCCTAAAGATCGTGCAGAAAACTTGATGATCGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAATCAAAGCCCATTAAAGGCACCAGGCCGCGTGGGCGAACAGCGCAAGAAGACCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTATCTAGCACTGCGTGGGGGCCAATCCCCACCGCATATGGTGCGTATCTTCAGCTGGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAAAGATGAGTATCTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGCGAATC
                                                                                                                                                                                                                                                                                                                                                                                  2023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1233
```

```
CURRENT FILING DATE: 2000-12-18
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: Patentin ver. 3.0
SEQ ID NO 1
                                                밁
                                                                                    Ş
                                                                                                                              맑
                                                                                                                                                                  Ś
                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-738-626-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 467; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 3309400
TYPE: DNA
ORGANISM: Corynebacterium
                                                                                                                                                                                                                                                                                               1053616
                                                                                                                                                                                                                                                                                                                                                                                1053559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1053499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1053439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1053379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1053319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1053259 TACCTCTATTTTGAGTTCCTCGCCGGAGCGGTTCATCACCATTGATTCGGCAGGGTATGT 1053318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1053199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1053139 GTATGAAATCTGCCTGACCACAAAACTTTCAGGGCACCACTGATGTGGCCCCCTCTGGCTGC 1053198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1053079 CAAAGATGAGTATCTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGCGAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1302 GTACGAGATCTGCCTGACCAACATGGTCACCGCGCGCGACGGAGGCGACGGCCCTGCCGCT 1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1242 CAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTC
CA 2023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTGGTCCGCAACGCCTCAACAGCGTCTGCGCGATCGGCTCCACGTGCCCCGGCT
                                                TGCTCTGTCTGATCCGGAGGCTGAGTGGGAGGAAATCCGCGTTAAATCACGGCCTCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AATCATTGCTGAGCTGCGCAGTAATCCTAAAGATCGTGCAGAAAACTTGATGATCGTGGA 105343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCCGCGCCGACCTGGCCGGCCGGGAGAAGGAACCGGGCCGAGAACCTGATGATCGTCGA
                                                                                                                                                                                                           TATTTACTCAGGTGGCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTGGTCCGCAACGACTTAGCCCGCGCGCGCTTTGCCCACACTTAAAACATCCAAGCT
                                                                                GTCCCTCTCCGACCAGGAGGAGGAGGAGGTTCACCGAGACCGTGGTGAAAGGCCCGCGCCATGGT
                                                                                                                              GATCAGAACTCTCGTCATCCAGAACAATCACGTGGAGTACGGAGTGGGCGGTGCACTTCT
                                                                                                                                                                  CGTCTACTCCGGGGCGCTCGGATGGTTCGCCCTCAGCGGCGCCCGACCTCAGCATCGT
                                                                                                                                                                                                                                                                                               TGGTGCCCCAAAGCTGCGCACCATGGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGG
                                                                                                                                                                                                                                                                                                                                   CGGCGCGCCAAGAAGCCCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGG 1841
                                                                                                                                                                                                                                                                                                                                                                             GGGCCACG---
                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGCCCGGCACCAGCACCGCCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCTCCATGAC 1781
                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTCGACGTCGAAACCTACGCCACAGTCCACCAACTTGTCAGCACCGTCTCTGCAGAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAATCAAAGCCCATTAAAGGCACCAGGCCGCGTGGGCGAACAGCGCCAAGAAGACCAAGA 1053378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTGTCGGTGCTGAGCGCCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTATCTAGCACTGCGTGGGGCCAATCCCACCGCATATGGTGCGTATCTTCAGCTGGGGGGA 105325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12.9%;
ilarity 59.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                           -CAGTCCGATTGAGTGCGTGCGCGCAGCATTCCCCCGGTGGTTCGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 266.8; DB 9;
Pred. No. 1.8e-49;
0; Mismatches 312;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3309400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1301
                                                1053855
                                                                                                                                                                                                               1053735
                                                                                                                                                                                                                                                                                               1053675
                                                                                                                                                                                                                                                                                                                                                                             1053615
                                                                                                                              1053795
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1053558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1053498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1053138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  بر
```

Db 1053856 GA 1053857

Search completed: October 5, 2005, 09:56:39
Job time : 2072.38 secs

This Page Blank (uspto)

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM nucleic
                                                                                                             O
                                                                                                                                             0000
                                                                                                                                                                                                                                  0.0
                                                                                                                                                                                                                                                                                  G
   O
                                                        ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
     score greater than or equal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB BG
 216.6
212.8
205.8
195.6
178
178
178
177
178
177
178
177
178
171.8
1171.8
1171.8
1167.2
1171.8
1167.2
1171.8
1167.2
1171.8
1167.2
1171.8
1167.2
1167.2
1167.2
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
1167.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d. No. is the number of results predicted by chance to have
re greater than or equal to the score of the result being po
is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST: +
1: 95
2: 95
3: 97
4: 97
6: 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34239544 seqs, 19032134700 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-089-514-1
2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   October 4, 2005, 20:20:08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                  10.5
10.3
10.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Maximum Match 100%
Listing first 45 summaries
                                   77.7.886.00.00
                                                                                                                                                                                                                                                                                                                             8.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   atgcgcacgcttctgatcga.....ccgtggcgggcgcccgatga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gb_gss1:*
gb_gss2:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gb_est4:*
gb_est5:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gb_est2:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gb_est1:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       est3:*
631
810
8579
6660
894
757
757
750
820
820
825
825
825
1695
1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                            BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version
(c) 1993 - 2005
                 BZ892725
CC024461
BZ896109
CC028609
CC028609
CC0334510
CC144065
BB658136
CL1078342
BRG363808
BRG363808
CC298074
CC290874
                                                                                                                                                                                                                                                                        BZ537360
CG170785
CF598037
                                                                                                                                                                                                                                                                                                                             CA003778
BZ570522
CF863831
BZ548859
BZ412600
BZ412593
                                                                                                                                                                                                                                                                                                                                                                                                                                                          IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10065.737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (without alignments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.1.6
Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          68479088
             CA003778 HS15114r
BZ570522 msh2 1411
CF863831 pszS608x6
BZ548859 pacs1-60
BZ548859 pacs1-60
BZ412590 OGAAGI1TM
BZ537360 OGAAGI1TM
BZ537360 OGAAGI1TM
BZ537360 OGAAGI1TM
CC144061 NARF#0 0152
CC098006 PST806993
CC098006 PST806993
CC098006 GMF900781
CC144065 NUDL.75A11
BE658113 GM700005A
CL1078342 CH216-149
AG363808 Mus muscu
BZ557654 pacs1-60
CV122440 Md1v4003f
CC290874 CH261-172
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  printed,
```

25 150.4 7.3 492 6 CB518127 CB518127 EST01 DNA 26 148.2 7.2 528 2 AW509018 AW509018 si39b01.y 27 148.2 7.2 698 5 BQ625203 BQ625203 CG757066 GD52-2-A 28 147 7.1 1628 9 CG757066 CG75603 GD52-2-A 29 145.4 7.1 1450 9 AG429738 AG429738 Mus muscu 30 143.8 7.0 2332 9 AG362333 AG51-17N1 31 141 6.8 11821 9 CL090560 CG746709 P040-1-B0 31 139.2 6.8 1567 9 CG744709 CG746709 P040-1-B0 32 139.6 6.7 71.6 CD407015 CG746709 P040-1-B0 33 139.2 6.8 1567 9 CG754548 CG746709 P040-1-B0 34 139 6.7 71.6 CA640597 CG746709 P040-1-B0 35 138.8 6.7 195.6 9 CG754548 CG746709 P040-1-B0 36 138.4 6.7 565 6 CA640597 CG754548 DF30-1-A1 37 138.4 6.7 569 4 B1955833 CG754548 DF30-1-A1 38 138.2 6.7 1822 9 AG435170 Mus muscu 39 138.2 6.7 1822 9 AG435170 AG381986 Mus muscu 39 138.2 6.7 2243 9 AG381986 AG381986 Mus muscu 40 137.6 6.7 2243 9 AG381986 AG381986 Mus muscu 41 136.2 6.6 1738 9 CG754612 CG754612 D550-1-D01 42 136.2 6.6 1738 9 CG755612 CG754720 P050-2-A0 43 136 6.6 1830 9 CL078620 CH215-151	Ω	ი	ი			O	ი			a	ი	ი	ი	ი		ი	Ω			
.4 7.3 492 6 CB518127 .2 7.2 528 2 AM509018 .2 7.2 698 5 BQ625203 .4 7.1 1628 9 CG757066 .4 7.1 1450 9 AG429738 .8 7.0 2332 9 AG363333 .4 6.8 1523 9 AG42873 .4 1 567 9 CG746709 .6 8 1567 9 CG746709 .6 8 1567 9 CG746709 .7 16 6 CD407015 .8 6.7 1956 9 CG754548 .4 6.7 565 6 CA640597 .4 6.7 1822 9 AG435170 .2 6.7 1822 9 AG435170 .2 6.7 1822 9 AG435170 .2 6.7 2243 9 AG381398 .4 6.7 526 7 CF887023 .5 6.7 1958 9 CG754672 .6 6.7 1822 9 AG435170 .7 1823 9 AG435170 .7 1824 9 AG381398 .7 1825 9 AG435170 .7 1825 9 AG440597 .7 1825 9 AG440597 .7 18	4 4 5 4	43	42	41	40	9	38	37	36	35	34	33	32	31	30	29	28	27	26	25
.3 492 6 CB518127 .2 528 2 AW509018 .2 698 5 BQ625203 .1 1628 9 CG757066 .1 1450 9 AG429738 .0 2332 9 AG363333 .0 1321 9 CC090560 .1 1523 9 AG448267 .7 716 6 CD407015 .7 7195 9 CG754548 .7 1956 9 CG754548 .7 1822 9 AG381986 .7 264 4 B1955833 .7 1822 9 AG381986 .7 2243 9 AG381986 .7 2243 9 AG381986 .7 2243 9 AG381986 .7 256 7 CF887023 .7 1827 9 AG435170 .7 2243 9 AG381986 .7 256 6 CF887023 .7 1822 9 AG435170 .7 2743 9 AG381986 .7 26754612 .7 CF987023 .7 1829 0 CG754612 .7 CF887023 .7 1829 0 CG754612 .7 CG754620 .7 CG754720	136 135	136	136.2	136.2	137.6	138.2	138.2	æ	•	138.8	139	139.2	139.6	141	143.8	145.4	147	148.2	148.2	150.4
6 CB518127 2 AW509018 2 AW509018 3 BQ625203 5 BQ625203 6 CG757066 6 AG429738 AG363333 CL090560 AG448267 6 AG448267 6 CG746709 6 CG746709 6 CG746709 6 CG746709 7 CG754720 7 CG754720 7 CG754720	ი ი ი ი	6.6	6.6	6.6	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.8	6.8	6. 8	7.0	7.1	7.1	7.2	7.2	7.3
CB518127 AW509018 BQ625203 CG757066 AG429738 AG363333 CL090560 AG448267 CG746709 CG754548 CA640597 B1955833 AG435170 AG381986 CF887023 B1427109 GG754612 CG754612 CG754620 CG754720 CG754720	1830 1642	1738	1793	540	526	2243	1822	669	565	1956	716	1567	1523	1821	2332	1450	1628	869	528	492
CB518127 AW509018 BQ625200 GQ75706 CQ75706 AG429738 AG429738 AG4363333 CL090566 AG448267 CG746708 CG746708 CG746708 CG750435170 AG381980 CF887023 B1427109 CG754720 CG754720	99	9	9	4.	7	9	9	4	თ	9	σ	φ	9	9	9	9	9	v	N	0
CB518127 EST01 [AW509018 si39b0] BQ625203 USDA-FF CG757706 P052-2- AG422738 Mus mus AG363333 Mus mus CG946709 P040-1- CG746709 P050-1- CA646597 wrein, F B195283 HVSMEm AG435170 Mus mus AG435170 B1-CF-I B1427109 Sah76e0 CG754612 P050-1- CG759956 P045-2- CG778620 CH216-1	CL078620 CG754720	CG750956	CG754612	BI427109	CF887023	AG381986	AG435170	BI955833	CA640597	CG754548	CD407015	CG746709	AG448267	CL090560	AG363333	AG429738	CG757066	BQ625203	AW509018	CB518127
					ui-c		_		_	-		_	-	_	Mus	Mus	CG757066 P052-2-	BQ625203 USDA-FE	AW509018 si39b01	CB518127 EST01 E

ALIGNMENTS

VERSION KEYWORDS LOCUS DEFINITION RESULT 1 CA003778 FEATURES REFERENCE COMMENT SOURCE ACCESSION TITLE ORGANISM JOURNAL AUTHORS source Molecular Markers Group, Department Genbank Institute of Plant Genetics and Crop Plant | Corrensstr. 3, 06466, Gatersleben, Germany Hordeum vulgare subsp. vulgare Hordeum vulgare subsp. vulgare Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Trach Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae; Triticeae; Hordeum. 529 bp HS15114r HS Hordeum vulgare subsp. 5-PRIME, mRNA sequence. CA003778 Email: stein@ipk-gatersleben.de Insert Length: 529 Std Error: 0.00 Plate: 15 row: I column: 14 Unpublished (2002 CA003778.1 GI:24280760 Corrensstr. 3, 00 Tel: 039482-5522 Contact: Stein Nils Barley ESTs from germinating seeds Fax: 039482-5595 Zhang, H., Potokina, E., Michalek, W., (bases 1 to 529) primer: Ml3rev /tissue_type="embryo + scutellum" /dev stage="0-16 hours after imbibition" /lab_host="XL10-Gold" /clone_lib="HS" /clone_lib="HS" /clone_lib="IS" /clone_lib="IS" /clone_lib="IS" /clone_lib="S" /clone_li EcoRI should be used (e.g. BamHI, SalI, PstI). NOTE: Also sub_species="vulgare" db_xref="GABI:258990" /mol_type="mRNA" /cultivar="barke" Location/Qualifiers clone="HS15I14" organism="Hordeum vulgare subsp. vulgare" xref="taxon:112509" mRNA linear EST 23-OC; vulgare cDNA clone HS15I14 Weschke,W., Research (IPK) Stein, N. and EST 23-OCT-2002 Tracheophyta;

due

selection

for

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                        RESULT 2
BZ570522
                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                          FEATURES
                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                     TITLE
                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                  ORGANISM
            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1722
                                                                                                                                                                                                                                                                                                                                                                                                                                    1962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1542
                                                                                                                                                                                                                                                                                                                                                                                                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
Email: cray....
Class: shotgun.
Class: Location/Qualifiers
                                                                                                                                                                                                                                                                                    BZ570522 845
msh2_1411.x1 msh Pseudomonas
genomic survey sequence.
BZ570522
BZ570522.1 GI:27205583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Н
                                                                                                                           Spencer, D.H., Raymond, C.K., Smith, E.E., Burns, J.L., Kaul, R. and Olsen, M.V. Whole-Genome-Sequence variation among musedomonas aeruginosa library J. Bacteriol. (2002) In press Contact: Chris K. Raymond
                                                                          Genome Center
University of Washington
Box 352145, Seattle, WA 98105-2145,
Tel: 2062216954
                                                                                                                                                                                                                        Pseudomonadaceae; Pseudomonas.
                                                                                                                                                                                                                                   Bacteria; Proteobacteria; Gammaproteobacteria;
                                                                                                                                                                                                                                                  Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                            SSD
                                                                                                                                                                                                                                                             Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTCTACTCCGGGGCGCTCGGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGCGCGCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTCGAGGTGGAGACCTACGCGCCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCTCTTAAGAAATGATCTGGGTAAGGTCTGCGAGCCTGGGAGCGTGCATGTTCCTCGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTCCGCGCCGACCTGGCCGGCCGGGAGAAGGAACCCTGATGATCGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ĆĠĠĊAĊĠĀĠĠĊĊĀĀŦĊĀĀĀĠĠŦĀĊĀĀŦĀĠĊĀĊĠŦĠĠĊĀĠĀĀĊĀĊĊĀĠĀĠĠĀĀĠĀŦĠĀĠŦĠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGC 2009
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATCAGGACGGTAGTGCTGCACGACGGNGTGGCCTCGGTCGGAGCAGGCGGGGGGGATTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATCCGCACCATCGTGCTGGCCGACGGCCCAGGCGGAGTTCGGCGTCGGCGGGGGGGATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATATACTCGGGGTCGATCGGGTTCTTCTCGTACAACCGCACGTTCGATCTGAACATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAGCCTGATCTAAGCCCGGTAGACTGCATCAAAGCCGCCTTTCCAGGAGGCTCGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCCCGGCACCAGCACCGCCGCCTGCGTACGCGCCGCCTTCCCCGGCCGCCTCCATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATGGACGTTGAATCATATAAATCTGTTCACACCATGGTGAGCACCATCCGCGGAACAAA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTACGTTTGCAACTGAAATACAGTGAAAAAGGACCAGGCTGAGAACTTGATGATTGTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGTGCCCCGAAGGTCAGGTCGATGGAGATCCTCGACGCGTTGGAGAGCAGCCCAAGGGG
                                                                                                                                                                                                             (bases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10.5%; ilarity 63.1%; Conservative
                                                               2066857244
                                               craymond@u.washington.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         due to the cloning system used Blue/white recombinats is not 100% reliable."
                                                                                                                                                                                                         1 to 845)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 216.6; DB 6;
Pred. No. 3.7e-27;
0; Mismatches 195;
                                                                                                                                                                                                                                                                                                                            bp DNA linear GSS 17-DEC-2
aeruginosa genomic clone msh2_1411,
                                                                                         USA
                                                                                                                                                                   multiple
                                                                                                                                                                                           Sims, E.E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                    Pseudomonadales;
                                                                                                                                                                                                                                                                                                                                                                                                             528
                                                                                                                                                                                                                                                                                                                                           GSS 17-DEC-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                               REFERENCE
AUTHORS
                                                                                                  KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                        RESULT 3
CF863831
LOCUS
                                                                                                                                         ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                  뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
          COMMENT
                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                     TITLE
JOURNAL
```

```
Matches 349;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2026 GCCCTCGACGGCAGCGCCGTGGCGGCGCCCCGATGA 2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1966 CTCTCCGACCAGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1606 GTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1546 CGCGCCGACCTGGCCGGCCGGGAGAAGGACCGGGCCGAGAAACCTGATGATCGTCGACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1486 TCCAAGCCCATCAAGGGGACCCGCCCCCGGGGCGGCACCGCGAGGAGGACGAGCGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           249
                                                                                                                           Phytophthora sojae
Phytophthora sojae
Eukaryota; stramenopiles;
                                                                                                                                                                                                                                                      psZSO08xG04f USDA-IFAPS:Expression of Phytophthora sojae genes during infection and propagation_sZS Phytophthora sojae cDNA clone sZS008G04 5, mRNA sequence.
                 Tyler, B. Not Published Unpublished (2003)
  Contact:
                                                                                                                                                                                                                  CF863831.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACTCGCACTGGGAGGACGAGTACCAAGAAACCCTGGACCAGGGTCGGGTGCTGGTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCACCATCGTGCTGGCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGCGATCGTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TACTGCGGCAGCCTGTTCTACCTCGACGTGCGCGGCGAGATGGACAGCTCGATCGCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACTCCGGGGCGCTCGGATGGTTCGCCCTCAGCGCCGCCGCCGACCTCAGCATCGTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCCGAAGATTCGCGCCATGCAGATCATCGACGAACTGGAACCGAGCCGACGCGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGGCAAGGACGCCTCGACCTGCTGGAAGGCAGCTTCCCCGGCGCTCGATCACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCGGCACCAGCACCGCCTGCGTACGCGCCCTTCCCCGGCGCGCTCCATGACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCCTGGAAAGCTATCCCAACGTGCATCACCTGGTGAGCAGCGTCACCGGCGAACTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGCGCAACGACATCGGACGCAGTTGCCAACCTGGCAGCGTACGGCTACCGGAGCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGGCGTCGCTGGCCAGCCCCAAGGACCGCGCGCAAAACCTGATGATCGTCGACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCCTGGAAGGGAAGGGCCGGACAGGGTTCCCGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCACCCTGCTGGTCAGGAACGGCCAGGTCAGTTGCTGGGGCGGCGGCGGCATCGTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGAATTCCTGCAGCCCCACCCGCCCGCGCGCAAGACCCCCGAGGAGGACATGGCGCTG
                                                                                  (bases 1 to 653)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Pseudomonas aeruginosa"
/mol_type="genomic DNA"
/strain="MSH"
/strain="MSH"
/db_xref="taxon:287"
/clone="msh2_1411"
/clone="msh2_1411"
/clone="Environmental isolate. Whole
Tyler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     library."
                                                                                                                                                                                                                  GI:38118457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                             Oomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e 212.8; DB 8;
. No. 1.6e-26;
ismatches 227;
                                                                                                                                                                                                                                                                                                                            å
                                                                                                                             Pythiales; Pythiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Whole
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genomic
                                                                                                                                                                                                                                                                                                                            EST 31-OCT-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

```
밁
                        δ
                                                            문
                                                                                      ş
                                                                                                                      밁
                                                                                                                                             Ś
                                                                                                                                                                             밁
                                                                                                                                                                                                        á
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 10.0%;
Best Local Similarity 58.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                              1877
                                                                                                                                                                                                            1697
                                                                                                                                                                                                                                                                     1637
                                                                                                                                                                                                                                                                                                                                1577
                                                                                                                                                1757
                                                                                                                                                                                                                                                                                                                                                                                       1517
                                                                                                                                                                                                                                                                                                                                                                                                                                                  1457
                                                                                         1817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1280
                                                                                                                      484
                                                                                                                                                                             424
                                                                                                                                                                                                                                        364
                                                                                                                                                                                                                                                                                                  304
                                                                                                                                                                                                                                                                                                                                                           244
                                                                                                                                                                                                                                                                                                                                                                                                                      184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               124
   604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: bmtyler@vt.edu
PCR PRimers
FORWARD: BK reverse primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Plate: 008 row: G column: 04
Seq primer: BK reverse primer
High quality sequence stop: 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BACKWARD: BK reverse primer
                        GCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGAC 1926
                                                                            ACCGCCTGGAGGAAGGCCCCCGGGGCGCTCTACTCCGGGGCGCCTCGGATGGTTCGCCCTCA
                                                                                                                                                                                                   TCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGC
                                                                                                                                                                                                                                                                                                                   GGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                           TCACGATCGGCGCGACGGCGTCGACTCCAAGCCCATCAAGGGGACCCGCCCCCGGG 1516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGACGTCACCCCGCTGGATCTGTACCGCCAGATGCGCGCCATCAACCCGTCGCCGTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACCAACATGGTCACCGCGCCGA
CCGGGTTCCTGGACACGGNCATCGCCATCCGCACCATGGTGGTCAAGGAC
                                                                                                                 ccecciiccceecececaieacceecececeaaaaaaececaicaieaarcaica
                                                                                                                                                                            TCGTGTCCGTGGTCAAGGGCGACCTGCGCGAGGACCGGACCGTGTACGACGCCTACCGCG
                                                                                                                                                                                                                                     CGGGATCCGTCCGGGTGGAGCGCCTCATGCAGATTGAGAAGTACTCGCACGTGATGCACA
                                                                                                                                                                                                                                                                                               GCGCCGAGCACATCATGCTGGTGGACCTGGGCCGCAACGACGTCGGCCGCGTGGCCAAGC
                                                                                                                                                                                                                                                                                                                                                        GCGCCAATGACGAGGACGAGGCACTGGTGAAGGACCTGCTCGCGGACGAGAAGGAGC
                                                                                                                                                                                                                                                                                                                                                                                      TCAAGGTGGACCATGACCGTGTCGTCGAGACGCACCCGATTGCCGGTACACGCCACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGTTCTTCCTCGACATGGGCGAGGACTTCCAGATCGTCGGCGCTTCCCCCGAGATGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCCCTGCTCGA---GTTCCCCGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCC 1456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pratt Dr., Blacksburg, 540-231-7318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    lab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /dev_stage="Free swimming"
/clone_lib="USDA-IFAFS:Expression of Phytophthora sojae
/clone_during infection and propagation_sZS"
/note="Vector: pBK-CMV; Site_1: EcoR1; Site_2: Xho1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="Zoospores"
/cell_line="P6497"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     organism="Phytophthora
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        clone="sZS008G04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         db_xref="taxon:67593"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 205.8; DB 7;
Pred. No. 2.6e-25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ٧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   24061,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sojae"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           268;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω,
                                                                                                                                                                                                                                                                  1696
                                                                                                                                                                                                                                                                                                                             1636
                                                                                      1876
                                                                                                                                             1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1399
                                                                                                                                                                            483
                                                                                                                                                                                                                                     423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183
                                                                                                                                                                                                                                                                                               363
                                                                                                                                                                                                                                                                                                                                                          303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63
```

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 4
BZ548859
LOCUS
                                                                                                                                        밁
                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                         1939
                                                                                                                                                                                                                            1879
                                                                                                                                                                                                                                                                                                                                                                                                    1819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1519
                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       306;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pacs1-60 1509.s1 pacs1-60 Pseudomonas a pacs1-60-1509, genomic survey sequence. BZ548859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         University of Washington Box 352145, Seattle, WA Tel: 2062216954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Whole-Genome-Sequence variation among Psedomonas aeruginosa library J. Bacteriol. (2002) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 1043)
Spencer,D.H., Raymond,C.K., Smith,E.E.,
Burns,J.L., Kaul,R. and Olsen,M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Class: shotgun.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Chris K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fax: 2066857244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pseudomonadaceae; Pseudomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pseudomonas aeruginosa
TTCGGCGTCGGCGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCTTCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGCGCACCATGGAGATCATCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGTCGACCATCCGGGGACGGCTGCGGCCCGCCACCAGCACCGCCGCCTGCGTACGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCTCCGTCCACGTGCCCCGGCCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGGAAAACCTGATGATCGTCGACCTGCTGCGCAACGACATCGGACGCAGTTGCCAACCT
                                                                                                                                                                                                                                                                                                                                                                                            ceccreçãosases en contra                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCACCTCGCAGGAGGACATGGCGCTGGCGGCGTCGCTGCTGCCAGCCCCAAGGACCGC
                                                                                                                                        GGCGAGATGGACAGCTCGATCGCCATCCGCACCCTGCTGGTCAGGAACGGCCAGGTCAGT
                                                                                                                                                                                                                        ę ececce ce a cere con contrate con contrate de la contrate del contrate de la contrate de la contrate del contrate de la contrate del la contrate de  contrate del la contrate del contrate del la contrate del la contrate del la con
                                                                                                                                                                                                                                                                                                            GAGCTGGAACCGAGCCGACGCGCATCTACTGCGGCAGCCTGTTCTACCTCGACGTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCTTCCCCGGCGGCTCGATCACCGGCGCGCCGAAGATTCGCGCCCATGCAGATCATCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGAGCAGCGTCACCGGCGAACTGGCGCCGGGCAAGGACGCCCTCGACCTGCTGGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCAGCGTACGGGTACCGGAGCTGTTCGCCCTGGAAAGCTATCCCAACGTGCATCACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     craymond@u.washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Pseudomonas
/mol_type="genomic DNA"
/strain="1-60"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone="pacs1-60_1509"
/clone_lib="pacs1-60"
/note="clinical isolate 1-60 Whole genomic shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 db_xref="taxon:287"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:27152440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Raymond
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 195.6; DB 8
Pred. No. 1.4e-23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98105-2145,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gammaproteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aeruginosa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              184;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        multiple isolates of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     `.
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sims, E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pseudomonadales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genomic clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1043;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GSS 17-DEC-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                            1938
                                                         1998
                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                1878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1578
                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
RESULT 5
BZ412600/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                   S
                                                                                                                                                      á
                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                      밁
                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                 S
                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 283; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1999
                                                                                     1799
                                                                                                                                                        1739
                                                                                                                                                                                                                            1679
                                                                                                                                                                                                                                                                                               1619
                   1859
                                                                                                                                                                                                                                                             449
                                                                                                                                                                                                                                                                                                                                 509
                                                                                                                      329
                                                                                                                                                                                          389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OGAAGIITM ZM_0.7_1.5_KB Zea mays genomic clone ZMMBMa0015004, genomic survey sequence.

BZ412600
BZ412600.1 GI:26047761
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zea mays
Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished (2002)
Other_GSSs: OGAAG11TC
Contact: Cathy Whitelaw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 (bases 1 to 523)
Whitelaw, C.A., Quackenbush, J., Van Aken, S., Utterback, T.,
Resnick, A., Fraser, C.M., Budiman, M.A., Bedell, J.A., Rohlfing, T.,
Citek, R.W., Numberg, A., Robbins, D. and Lakey, N.
Consortium for Maize Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD clade; Panicoldeae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: whitelaw@tigr.org
                                                                                                                                                                                                                                                                                                                                                    CCGGCCGGGAGAAGGACCGGGCCGAGAACCTGATCGTCGACCTGGTCCGCAACGACC
TCGGATGGTTCGCCCTCAGCGCGCCGCCGCCGATCGTCATCCGCATCGTGC
                                                                                                                                            CCGCCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCGCGCTCCATGACCGGCGCGCCCAAGAAGC 1798
                                                                                                                                                                                                                                                                                   TCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGGACAAAG 550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGTAAAGG 2008
                                                   GATCAATGGAGATCCTTGATTCACTTGAGACAAGCCCAAGAGGAGTGTACTCAGGATCGA
                                                                        GCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGGCGTCTACTCCGGGGCGC 1858
                                                                                                                      CCGTTGATTGTGTGAAAAGCGGCCTTTCCAGGCGGTTCGATGACCGGGGCTCCAAAAGTCA
                                                                                                                                                                                          ACAGAAGTGTTCACACCATGGTGAGTACCGTCTGCGGAACAAAGAAGCCAGATCTAAGCC 330
                                                                                                                                                                                                                            ACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCA 1738
                                                                                                                                                                                                                                                             TCGGCAAGGTCTGCGAGCCAGGGAGCGTGCATGTCCCACGCCTCATGGACGTTGAATCAT
                                                                                                                                                                                                                                                                                                                                 CCACCAGCGAAAAAGACCAGGCCGAGAACCTGATGATTGTCGACCTCTTAAGAAACGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCTGGGGCGGCGGCATCGTCGCCGACTCGCACTGGGAGGACGAGTACCAGGAAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         primer: TR
ss: sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Medical Center Drive, 301-838-5843 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="ZMMBMa0015004"
/clone=lib="ZM_0.7_1.5_KB"
/note="Vector: pBCSK-; Site 1: HincII; 0."
methylation filtered genomic DNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /mol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    db_xref="taxon:4577"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /strain="B73"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Zea mays"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                 8.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      _type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                 <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                 Score 178;
Pred. No. 1.
                                                                                                                                                                                                                                                                                                                                                                                                 ore 178; DB 8; I ed. No. 1.4e-20; Mismatches 175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ¥
                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20850,
                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.7-1.5
                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ሯ
                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                               1618
                                                                                                                                                                                                                                                             390
                                                                                                                                                                                                                                                                                               1678
                                                                                                                      270
                                                                                                                                                                                                                                                                                                                                 450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                   1918
                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 6
BZ412593
                                                                               Š
                                                                                                                     밁
                                                                                                                                                      Ş
                                                                                                                                                                                        밁
                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                 S
                                                   片
                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Snoor
                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 283; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                            1619
                                                                                                                                                                                                                                                                                 1919
                   1799
                                                                                                                      135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               209
                                                                                                                                                                                          75
                                                                                                                                                                                                                                                             15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Consortium for Maize Genomics Unpublished (2002) Other_GSSs: OGAAG11TM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 631)
Whitelaw, C.A., Quackenbush, J., Van Aken, S., Utterback, T.,
Resnick, A., Fraser, C.M., Budiman, M.A., Bedell, J.A., Rohlfing, T.,
Citek, R.W., Nunberg, A., Robbins, D. and Lakey, N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genomic survey sequence
BZ412593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BZ412593
OGAAG11TC ZM_0.7_1.5_KB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD clade; Panicoldeae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: whitelaw@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tel: 301-838-5843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Cathy Whitelaw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BZ412593.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGCGATCGTGTCCCTCTCCGACCAGG
GCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGC 1858
                                                                        CCGCCGCCTGCGTACGCGCCGCCTTCCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGC 1798
                                                                                                                      ACAGAAGTGTTCACACCATGGTGAGTACCGTCTGCGGAACAAAGAAGCCCAGATCTAAGCC
                                                                                                                                                 ACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCA 1738
                                                                                                                                                                                          TCGGCAAGGTCTGCGAGCCAGGGAGCGTGCATGTCCCACGCCTCATGGACGTTGAATCAT
                                                                                                                                                                                                                      TCAACAGCGTCTGCGCGATCGGCTCCGTGCCCCGGCTCTTCGAGGTGGAGACCT
                                                                                                                                                                                                                                                             CCACCAGCGAAAAAGACCAGGCCGAGAACCTGATGATTGTCGACCTCTTAAGAAACGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGCAGAGTACGACGAAATGCTGCTGAAAGCGAAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCACGACGAGAAGCCTCGGTCGGGGCGGGTGGGGCGATCGTAGCGCTGTCGAGCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGGGTTCTTCTCGTACAACCACACATTCGACCTGAACATTGTGATCCGAACTGTTATCC
                                                     CCGTTGATTGTGTGAAAGCGGCCTTTCCAGGCGGTTCGATGACCGGGGCTCCAAAAGTCA 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Medical Center Drive,
                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:4577"
/clone="zwMBMa015004"
/clone_lib="ZM_07_1.5 KB"
/clone_lib="ZM_07_1.5 KB"
/note="Vector: pBCSK.; Site_1: HincII; 0.7-1.5 methylation filtered genomic DNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Zea mays"
/mol_type="genomic D
/strain="B73"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:26047739
                                                                                                                                                                                                                                                                                                                                               8.6%;
                                                                                                                                                                                                                                                                                                                               Score 178; DB 8;
Pred. No. 1.4e-20;
0; Mismatches 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     631
Zea 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rockville, MD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     đď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA
                                                                                                                                                                                                                                                                                                                                 175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
clone ZMV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20850, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2016
                                                                                                                                                                                                                                                                                                                                                             Length 631;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            52
                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       zmmBMa0015004,
                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-DEC-2002
                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                            1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1978
                                                                                                                                                                                            134
                                                                                                                                                                                                                                                                                               1618
                                                                                                                        194
                                                                                                                                                                                                                                                             74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 150
```

0;

```
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 7
BZ537360
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
  밁
                      ঠ
                                                        밁
                                                                                 Ś
                                                                                                               문
                                                                                                                                      ঠ
                                                                                                                                                                       밁
                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 283; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                   1679
                                                                                                                                           1619
                            1739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1919
  195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          255
                                                                                                                                                                       15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BZ537360.1
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 631)

whitelaw,C.A., Quackenbush,J., Van Aken,S., Utterback,T., Resnick,A., Fraser,C.M., Budiman,M.A., Bedell,J.A., Rohlfing,T., Citek,R.W., Nunberg,A., Robbins,D. and Lakey,N. Consortium for Maize Genomics

Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BZ537360
OGAGD95TC ZM2 0.7 1.5 KB
genomic survey sequence.
BZ537360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: whitelaw@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Cathy Whitelaw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zea mays
                                                                                                                                                                                    CCGGCCGGGAGAAGGACCGGGCCGAGAACCTGATCGTCGACCTGGTCCGCAACGACC
CCGTTGATTGTGAAAGCGGCCTTTCCAGGCGGTTCGATGACCGGGGCTCCAAAAGTCA
                                                                                                                                TCAACAGCGTCTGCGCGATCGGCTCCACGTGCCCCCGGCTCTTCGAGGTGGAGACCT
                      CCGCCGCCTGCGTACGCGCCGCCTCCCCCGGCGCGCTCCATGACCGGCGCGCCCAAGAAGC 1798
                                                                                 ACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCA 1738
                                                                                                                                                                    CCACCAGCGAAAAAGACCAGGCCGAGAACCTGATGATTGTCGACCTCTTAAGAAACGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAGCAGAGTACGACGAAATGCTGCTGAAAGCGAAAGCC 472
                                                      ACAGAAGTGTTCACACCATGGTGAGTACCGTCTGCGGAACAAAGAAGCCAGATCTAAGCC
                                                                                                             TCGGCAAGGTCTGCGAGCCAGGGAGCGTGCATGTCCCCACGCCTCATGGACGTTGAATCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGCCGACGGCCAGGCGGAGTTCGGCGGCGGGGGGGGGATCGTGTCCCTCTCCGACCAGG 1978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCGGGTTCTTCTCGTACAACCACACATTCGACCTGAACATTGTGATCCGAACTGTTATCC 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATCAATGGAGATCCTTGATTCACTTGAGACAAGCCCCAAGAGGAGTGTACTCAGGATCGA 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGCACGACGGAGAAGCCTCGGTCGGGGCGGGTGGGGCGATCGTAGCGCTGTCGAGCCCAG 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCGGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGC 1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                            primer: TF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301-838-5843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Medical Center Drive,
                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                             sheared ends.
                                                                                                                                                                                                                                                                                              /clone="ZMMBMa0053P22"
/clone_lib="ZM2_0.7_1.5_KB"
/note="Vector: pBCSK-; Site_1: HincII; 0."
methylation filtered genomic DNA library"
                                                                                                                                                                                                                                                                                                                                                                      /mol_type="genomic DNA"
/strain="B73"
                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:4577"
                                                                                                                                                                                                                                                                                                                                                                                                    organism="Zea mays"
                                                                                                                                                                                                                                                                                                                                                                                                                             ocation/Qualifiers
                                                                                                                                                                                                                                        8.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:27085796
                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                           Score 178; DB 8; I
Pred. No. 1.4e-20;
0; Mismatches 175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              631
Zea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bp
mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₹
                                                                                                                                                                                                                                                      Length 631;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              clone
                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                              0.7-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZMMBMa0053P22,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSS 16-DEC-2002
                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                           Gaps
                                                                                                                                                                 74
                                                                                                                                         1678
                                                      194
                                                                                                               134
                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 8
CG170785/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                   ঠ
                                                     밁
                                                                              Ś
                                                                                                            뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                    Query Match
Best Local Similarity
Matches 283; Conserv
                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1799
543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genomic survey CG170785
                                                                                                                                                                                                                                                                                                                                                                                    Seq primer: TF
Class: sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                                               Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bennetzen, J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CG170785.1
                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                              _
[0]
                                                                                                                                                                                                                                                                                                                                                       .810
```

```
1559 CCGGCCGGGAGAACGGACCGAGACCTGATGATCGTCGACCTGGTCCGCAACGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Maize Genomics Consortium Unpublished (2003) Other GSSs: PUIR58TB Contact: Cathy Whitelaw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD clade; Panicoideae; Andropogoneae; Zea.

1 (bases 1 to 810)

Whitelaw, C.A., Quackenbush, J., Van Aken, S., Utterback, T., Resnick, A., Fraser, C.M., Yuan, Y., San Miguel, P., Ma, J. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CG170785
PUIIR58TD ZM_0.6_1.0_KB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: whitelaw@tigr.org
                                            ACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGCCACCAGCA 1738
                                                                                                                            TCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCT
                                                                                                                                                                                                  CCACCAGCGAAAAAGACCAGGCCGAGAACCTGATGATTGTCGACCTCTTAAGAAACGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGGATGGTTCGCCCTCAGCGGCGCCGCCCGACCTCAGCATCCGTCATCCGCACCATCGTGC 1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGC
ACAGAAGTGTTCACACCATGGTGAGTACCGTCTGCGGAACAAAGAAGCCAGATCTAAGCC
                                                                                                  TCGGCAAGGTCTGCGAGCCAGGGGAGCGTGCATGTCCCACGCCTCATGGACGTTGAATCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGCAGAGTACGACGAAATGCTGCTGAAAGCGAAAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGCGATCGTGTCCCTCTCCGACCAGG 1978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGGGTTCTTCTCGTACAACCACACATTCGACCTGAACATTGTGATCCGAACTGTTATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATCAATGGAGATCCTTGATTCACTTGAGACAAGCCCAAGAGGAGTGTACTCAGGATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Medical Center Drive, 301-838-5843
                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_lib="ZM_0.6_1.0_KB"
/note="Vector: pCR4-TOPO; Site_1:
CoT selected genomic DNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:4577"
/clone="ZMMBTa0592I20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Zea mays"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   strain="B73"
                                                                                                                                                                                                                                                                                                                    8.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _type="genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence
                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                             Score 178; DB 9;
Pred. No. 1.4e-20;
0; Mismatches 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     810 bp DNA linear GSS 21-AU Zea mays genomic clone ZMMBTa0592120,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rockville, MD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA"
                                                                                                                                                                                                                                                                                                175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2016
                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                   EcoRI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.6-1.0 kb high
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GSS 21-AUG-2003
                                                                                                                                                                                                                                                                                                ٥,
                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                 1678
                                                                                                                                                                                                                                                 1618
                                                                                                544
                                                                                                                                                                                                604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              434
                                                                                                                                                                                                                                                                                             0
```

```
RESULT 9
CF598037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               믕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (2000)
Contact: Sandy Clifton, Ph.D. - Neospora
USDA-Washu Neospora EST Project
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cole,R., Fogarty,S., Tang,K., Howe,D.K., Sibley,L.D., Clifton,S., Marra,M., Hillier,L., Pape,D., Martin,J., Wylie,T., Theising,B., Bowers,Y., Gibbons,M., Ritter,E., Bennet,J., Ronko,I., Tsagareishvili,R., Fedele,M., Belaygorod,L., Franklin,C., Carr,L.M., Grow,A., Maguire,L., Wadkins,J., Richey,J., Waterston,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CF598037 579 bp mRNA linear EST 26-SEP-NCEST3e06c12.y1 Nc-LIV Tachyzoite cDNA Library Neospora caninum cDNA 5' similar to TR:P72539 P72539 PAPA.;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                            Email: est@watson.wustl.edu
Contact David Sibley (toxoest@borcim.wustl.edu)
information relating to organism, libraries, or
Seq primer: -40RP from Gibco.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and Wilson,R.
USDA-WashU Neospora EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sarcocystidae; Neospora.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Alveolata; Apicomplexa; Coccidia; Eimeriida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Neospora caninum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CF598037.1 GI:36356095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGCAGAGTACGACGAAATGCTGCTGAAAGCGAAAGCC 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCC 2016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATCAATGGAGATCCTTGATTCACTTGAGACAAGCCCAAGAGGAGTGTACTCAGGATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGTTGATTGTGTGAAAGCGGCCTTTCCAGGCGGTTCGATGACCGGGGCTCCAAAAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGCCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCGCCCATGACCGGCGCGCCCAAGAAGC 1798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCACGACGAGAAGCCTCGGTCGGGGCGGCTGGGGGGGATCGTAGCGCTGTCGAGCCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGGGTTCTTCTCGTACAACCACACACTCGACCTGAACATTGTGATCCGAACTGTTATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 579)
                                                                                                                                                                                                                                                                                                                                                                                                                                                        314 286 1800
314 286 1810
           /dev_stage="Tachyzoite"
//lab host="ElectroTen Blue cells (Stratagene)"
//lab host="ElectroTen Blue cells (Stratagene)"
//clone libb="Nc-LIV Tachyzoite cDNA Library"
//note="Vector: pBluescript II SK+Vector type: plasmid;
Site 1: EcoRI; Site 2: XhoI; The cDNA library was
constructed by Keliang Tang, and Robert Cole at Washington
University. cDNA was synthesized from Poly(A)+ mRNA using
an oligo-d(T) primer containing a XhoI site. Following
second strand synthesis, EcoRI adapters were ligated to
the cDNA, and products were size-selected on sephacryl
S500. The cDNA were directionally cloned into the
EcoRI/XhoI prepared pBluescript II SK+ vector, and
electroporated into ElectroTen Blue cells (Stratagene).
The library may contain a small percentage of host or
                                                                                                                                                                                                                                                                                  /organism="Neospora ca
/mol_type="mRNA"
/db_xref="taxon:29176"
                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
contaminants."
                                                                                                                                                                                                                                                                                                                         caninum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3
                                                                                                                                                                                                                                                                                                                                                                                                 for further clone availa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63108,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST 26-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                 availability.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               424
                                                                                                                                                                                                                             TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 10
BZ892725/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 297; Conserv
                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1921 GCC 1923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           556 ACC 558
                                                                                                                                                                                                                                                                                                                                                                                                                     BZ892725.1
GSS.
                                                                                                                                                                                                                               Contact: Goo Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                              shotgun
                                                        1. .660
```

```
1444 CCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCCAAGCCCATCAAGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1861 GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG 1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1801 ACCATGGAGATCATCGACCGCCTGGAGGAGGCCCCCCGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1741 GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGCCTCCATGACCGGCGCGCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1684 CCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGG----CCCGGCACCAGCACC 1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1624 AGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1564 CGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCAAC 1623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1504 ACCCGCCCCGGGGCGCACCGCGAGGAGGACGAGCGGCTCCGCCGCCGACCTGGCCGGC 1563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   436 GCAATGGAAATCATCGAAAGGCTGGAAGAACGACCACGGGGAATCTATAGCGGGGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                316 ACAGTGCÁTCÁACTGGTGTCGÁCAATCCGAGGCAAGCTGAGGGAACCGGAAGTGGACTTT 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Haloarcula marismortui ATCC 43049
Haloarcula marismortui ATCC 43049
Archaea; Euryarchaeota; Halobacteria; Halobacteriales;
                                                                                                                                                                                                                                                Institute for Systems Biology
1441 North 34th Street, Seattle,
Tel: 206 732 1412
Fax: 206 732 1299
                                                                                                                                                                                                                                                                                                                                                                                                    Low-pass Sequencing for Microbial Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Goo,Y., Roach,J., Glusman,G., Baliga,N.S., DasSarma,S., Ng,W.V. and Hood,L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BZ892725
660 bp DNA linear GSS 30-JUL-2/HM7_0152.x1_059.abl Hm pUC18 Library Haloarcula marismortui ATCC 43049 genomic 5', genomic survey sequence.
                                                                                                                                                                                    Email: ygoo@systemsbiology.org
Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Halobacteriaceae; Haloarcula.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCTTCCTGTCGGTCACAGGTGAAGCCAGTTTAAACATCGTCATTCGAACAGTCGTCTTT 555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTGACGCTGTAATATCGGCATTTCCAGGAGGCTCGATGACAGGCGCTCCGAAGGAGCGG 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGTGTCTGTATTCCAGGAACCGTGCACGTTCCTGAGTTGATGGTGACAGAGACCTACGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACGAAAAAGATATGGTCGAGAATCTAATGATAGTTGATCTCGTCCGGAACGATTTAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGAGGCCCCGCGGCAAGACGCCGGAAGAGATCGCGACCTGGTGAACGATTTGGCAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGGAACGCTTTCTAATGAAGGATGTGGACGGTTGGCTGGAGTCGAAACCCCATCAAGGGT 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 660)
/organism="Haloarcula marismortui ATCC 43049"
/mol_type="genomic DNA"
/strain="ATCC 43049"
                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:33343358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 174.2; DB 7;
Pred. No. 6.4e-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                               ₩Ã
                                                                                                                                                                                                                                                                                                                                                                                                                             Comparative Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Deutsch, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSS 30-JUL-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  195
```

USA

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                       RESULT 11
CO024641/c
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                       ર્
                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                          REFERENCE
                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                          TITLE
       JOURNAL
                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local
                                                                                                                                                                                                                                                                                                                                                                                1839
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            345;
                                                                                                                                                                                                                                                                                                                                                                                                                    82
                                                                                                                                                                                                                                                                                                                                               22
                                                                                 EST: Coccidioides posadasii
Coccidioides posadasii
Coccidioides posadasii
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eu
                                                                                                                                                                                CO024641

EST803025 Coccidioides posadasii spherule cDNA library, kb Coccidioides posadasii cDNA clone CIFA227 3' end, mRI CO024641

CO024641.1 GI:48551893
     Onygenales; mitosporic Onygenales; Coccidioides.

1 (bases 1 to 894)
Gardner,M.J. and Cole,G.T.
Analysis of gene expression in Coccidioides posadasii mycelia spherules via expressed sequence tags
Unpublished (2003)
                                                                                                                                                                 EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                           GGGCGTCTACTCCGG 1853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTGCGGCCCGGCACCAGCACCACCCCCCCCCCCCTTCCCCGGCCGCCTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTCTACTCCGCGCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                  CACCGGCGCCGAAGCCGCGGACGATGGAGATTATCGACGAGGTGGAGCGGACCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCGGCGCGCCAAGAAGCGCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTACGCGACGCGGTGAGCATCGCCGACGCGGTCGCAGCCGTGTTCCCTGGTGGGACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGACCTTGAGGTAGACCTCTGTAGCGACGAGAAGGAGCGGGCTGAACACGCCATGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTGCTCACGGAGCCGATTGCCCGGAACGCCGCGACGCGCGACGCCGTCCGAAGACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACCTTCGACGCTGTCCGGTGAATCCGGCTCCGTACTCAGCCCTGCTTGAGTTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACGTTCCAGACAAACGTCTCACACCGGCTGACCGCCCCGGCGGCCGTCCACCCAGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGCCAACGGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTACCGCCGCGTCGACCGGTATTCCGAAGAAAAGCACCTCGTTTCCCTCATCGAAGGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGACCTCGAACGCAATGACCTCGGCAAGGTCAGCGAGTATGGGTCCGTCGACGTCGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       eceacriccececeacciesceseceeceaeaaaaeaacceeeceaeaaccieaeacciearearcer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGTCGAGTCCAAGCCCATCAAGGGGACCCCCCCCCGGGGCGGCACCGCGGAGGAGGACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGAACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGAAGCAGCGTTCGCCGACCGCGTCCGGCAAATAAAACAGTACGTCAGGGACGGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:272569"
/clone"Hm pUC18; Site_1: SmaI; A shotgun library was
/note="Vector: pUC18; Site_1: SmaI; A shotgun library was
constructed from Haloarcular marismortui genomic DNA using
pUC18/SmaI/BAP plasmid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 171.8; DB |
Pred. No. 1.6e-19
0; Mismatches 26'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              œ
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -GGACGTCGATGGCGACCA
                                                                                                         Eurotiomycetes;
                                                                                                                                                                                                                                   EST 10-JUN-2004
ary, 0.5 to 5.3
                                                                                                                                                                                                                     mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       υ
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1358
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1598
                                                                                                                                                                                                                                                                                                                                                                                                                  23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1298
                                                                                                                                                                                                                                                                                               5
                    S
                                                       밁
                                                                                       Ś
                                                                                                                              밁
                                                                                                                                                       S
                                                                                                                                                                                                В
                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 442;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                    1879
                                                                                                                                                                                                                                                                                                        1642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1291 AACGGCGAGTCGTACGAGATCTGCCTGACCAACATGGTCACCGCGCCG---ACCGAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1231 GCGCGCCACGACAAGGACGCCTACCTCAAGCGCATCGACGAGTGCCTCAAGGAGATCCGC
                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Other_ESTs: EST803026
Contact: Gardner MJ
The Institute for Genomic Research
9712 Medical Center Drive, Rockville,
Tel: 301 838 3519
Fax: 301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: gardner@tigr.org.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                  GACAAAGAAGAAGACGAGCGGAGAAAAAGTCAGTTAGCGACGGATGTCAAGGAGCTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGGGCGAGGCGTATGAGGTGACAATCACGACAAAATTCAAGGCATCGTGTCCGGATGTA
GGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGGAG
                                                                                 CTGGAGGAAGGCCCC---CGGGGCGTCTACTCCGGGGCGCTCGGATGGTTCGCCCTCAGC
                                                                                                                                                             TTCCCCGGCGCTCCATGACCGGCGCGCCCAAGAAGCGCACCATGGAGATCATCGACCGC
                                                                                                                                                                                                                                TCGACCATCCGGGGACGGCTGCGGCCCGGCCACCAGCACCGCCGCCTGCGTACGCGCCGCC
                                                                                                                                                                                                                                                                                               TCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTACGCGCCCCGTGCACCAGCTGGTG
                                                                                                                                                                                                                                                                                                                                           GAGAACTTAATGATTGTCGATCTTATCCGCGCCGACCTCCACAACATTTCTCCATCAAAA
                                                                                                                                                                                                                                                                                                                                                                GAGAACCTGATGATCGTCGACCTGGTCCGCÂACGACCTCAACAGCGTCTGCGCGATCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCGCGGAGGAGGACGACCGCCCGACCTGGCCGGCCGGGAGAAGGACCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATAGACTTCCGTGTCAACGAGACCACCATACTCTCTTCGTCGCCCGAGAGGTTTATATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          crcgagtrcc----ccgaactgrcggrggrgagcgccrcgcgcgagcggtrccrcacg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACCCATACGCATTATATCTCTCCCTTCGAGAACGTAACCCCCCCTTACTCAGCGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGGCCCTGCCGCTCTACTCCGCGCCTGCGCGCCATCAGCCCCGTCCCGTACGGCGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCTGGACGACGAAGCATCGTACAGCCAGAAGATCCGGGCCGCACAGAATGCCATTAAG
                                                       ĊTĠĠĂAĠĂGCAĊĊĠĊĠAĠĊĠĊĠĠĊAŤAŤĂĊŤĊĊĠĠCAGŦĊŤĠĠĠĊŤAŦĠŤAŦĠĊĠĊĊĂĠĊ
                                                                                                                            TTCCCACCAGGATCCATGACGGGCGCTCCCAAACTCAGAGCCGTGCAAATCCTCGACGGC
                                                                                                                                                                                                  ACAACCATTCAATCCCACATCGCCCCCAACGTCGGCGGCGTCCAGGTTCTCGAGCGATGC
                                                                                                                                                                                                                                                                     TCAATCAAGGTCCCGGAAACTACTCCACGTTGAAAGCTACGAAACAGTACATCAGCTCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATAGATGCTGATGGCGTGGCTGAAATGAAACCAATAAAGGGAACCCTTGCCGTCAGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Vector: pExpress 1; Site_1: Not I; Site_2:
Coccidioides posadasii spherule cDNA library, 0.5
kb "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /dev_stage="spherules"
/lab_host="E. coli DH10B,
/clone_lib="Coccidioides
0.5 to_5.3 kb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    clone="CIFA227"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       strain="C735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Coccidioides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _xref="taxon:199306"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 167.8; DB 7
Pred. No. 7.6e-19;
0; Mismatches 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           posadasii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             , T1 phage
posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   387;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20850,
```

1461

602

1407

662

1347

722

1878

1938 182 1821

242

1761

302

1701

422 1641 482 1581 542 1521

362

Indels Length

12;

1290

782

resistant" spherule c

CDNA

library,

ç ECO ιn

맑

Ś 망 Ś 밁 8

밁

1840

566

626

506

446

386

```
RESULT 12
BZ896109
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 334; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                        1421
                                                                                                                                                                                                                                                                                               1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1999
                                                                        1541
                                                                                                                                                1481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2059 T 2059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                    150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                      267
                                                                                                              207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                             90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NaRP6_0132 Na pUC18 Library Natrialba asiatica survey sequence.
BZ896109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Goo,Y., Roach,J., Glusman,G., Bali
DasSarma,S., Ng,W.V. and Hood,L.
Low-pass Sequencing for Microbial
Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email: ygoo@systemsbiology.org
Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Institute for Systems Biology
1441 North 34th Street, Seattle,
Tel: 206 732 1412
Fax: 206 732 1299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Natrialba asiatica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BZ896109.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Goo Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Halobacteriaceae; Natrialba.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Archaea; Euryarchaeota; Halobacteria; Halobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Natrialba asiatica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCTGACCGTCGTCGGTGCAAGCCCCGAAACGCTGCTATCGGTGCGCGGGC----GAGAAG
                                                                                                                                                                                                                     AACTGTCGGTGCTGAGCGCCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCG
                                                                                                                                                                                                                                                                                             TCTACTCCGCGCTGCGCCATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGGTGAAGGCGAATGCTGCTACGGCGCCTGCCTAGGGAATCGGCGCCAGATGCTGGA
 ACCTGGTCCGCAACGACCTCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGC 1660
                                                                        GGCTCCGCGCCGACCTGGCCGGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCG
                                                                                                                                              TCTACGAGGCGATGCGGGAGATCAACCCCTCGCCGTACATGTACTTGCTCGAGCACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCGGCGTCGGCGGGCGATCGTGTCCCTCTCCGACCAGGAGGAGGAGTTCACCGAGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCACCGTCGATCAGTCGGTGGTTATCCGTACGATTGTAAAGTACGGAAAGCAGCTTGAG
                                    GACTGGCGGGCGAGATGCTCGCAGACGGGAAGGAGCGCCCGAACACCATGCTGGTCG
                                                                                                              TCATGGCGAATCCGATCGCCGGCACCTGCGACCGCGGGACGAGCCCCGTCGAGGACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 757)
                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 shotgun
                                                                                                                                                                                                                                                                                                                                                                                                               /mol_type="genomic DNA"
/strain="ATCC 700177"
/db_xref="taxon:64602"
/clone_lib="Na pUC18 Library"
/note="Vector: pUC18; Site_1: SmaI; A shotgun library
constructed from Natrialba asiatica genomic DNA using
pUC18/SmaI/BAP plasmid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Natrialba asiatica"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GI:33346585
                                                                                                                                                                                                                                                                                                                                                  8.1%;
                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                 Score 167.2; DB 8
Pred. No. 9.8e-19;
0; Mismatches 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Baliga, N.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Comparative Genomics
                                                                                                                                                                                                                                                                                                                                                                   DB 8;
                                                                                                                                                                                                                                                                                                                                   239;
                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Deutsch, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ear GSS 30-JUL-2003 genomic 5', genomic
                                                                                                                                                                                                                                                                                                                                 4;
                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                        1600
                                                                                                                                                1540
                                                                                                                                                                                                                       1480
                                                                                                                                                                                                                                                             149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    122
                                                                                                              266
                                                                                                                                                                                    206
                                                                                                                                                                                                                                                                                                                                 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 13
CO028609/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
S
                                    밁
                                                                    Ş
                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Focus
                                                                                                          Query Match
Best Local Sim
Matches 344;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1781
 327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Coccidioides posadasii
Coccidioides posadasii
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eu
Eukaryota; mitosporic Onygenales; Coccidioides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Onygenales; mitosporic Onygenales; Coccidioi 1 (bases 1 to 750)
Gardner, M.J. and Cole, G.T.
Analysis of gene expression in Coccidioides spherules via expressed sequence tags
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CO028609 750 bp mRNA linear EST 10-JUN-2004
EST806993 Coccidioides posadasii spherule cDNA library, 0.5 to 5.3
kb Coccidioides posadasii cDNA clone CIFAS82 3' end, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The Institute for Genomic Research 9712 Medical Center Drive, Rockville, MD 20850, USA Tel: 301 838 3519 Fax: 301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Other_ESTs: EST806994
Contact: Gardner MJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CO028609.1 GI:48559837
                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: gardner@tigr.org.
Location/Qualifiers
                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCATCCGCACCATCGTGCTGGCCGACGGCCAGGCGG 1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cceecececcaaeaaececaccareeaearcarceacceccreeaeeaaeaccccceee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCGGCCCGGCACCAGCACCGCCGCCTGCGTACGCGCCGCCCTTCCCCGGCGGCTCCATGA 1780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCTTCGAGGTGGAGACCTACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGC 1720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTCGCCCGAGAGGTTTATATCCATAGATGCTGATGGCGTGGCTGAAATGAAACCAATAA
                                                                        CCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGTCGAGTCCAAGCCCATCA 1498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCATTCGGACGGCCACGGTGGAAGCGGACGCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCTGTACGGCGONGGGCGTCGGCTACTACTCCTGGACGGCCGACGCCGATTTCGCGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGTCTACTCCGGGGCGC-TCGGATGGTTCGCCCTCAGCGCGCCGCCGACCTCAGCATC 1899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGGCGCGCGAAGATCCGCGCGATGGAGCTCATCGACGAACTCGAGACCGAGCCCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCATGAACGTGCTGAAGTACAGCCACGTCCAGCACATCGAGTCGACGGTGACGGGCGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCCCGCGGACGCCGACGCGTTCGACGCGACGCGGCGTCGTTTCCCCGCGGGACGCTCT
                                                                                                              Conservative
                                                                                                                                                                                                                                                         /dev_stage="spherules"
/lab_host="E. coli DH10B,
/clone_lib="Coccidioides
0.5 to 5.3 kb"
                                                                                                                                                                                                                                                                                                                                                                                    /organism="Coccidioides
/mol_type="mRNA"
                                                                                                                                                                                                         Coccidioides posadasii
kb "
                                                                                                                                                                                                                                                                                                                                                      ₽
                                                                                                                                                                                                                     'note="Vector: pExpress 1; Site_1: Not I; Site_2:
Coccidioides posadasii spherule cDNA library, 0.5
                                                                                                                                                                                                                                                                                                                                     clone="CIFAS82"
                                                                                                                                                                                                                                                                                                                                                                     strain="C735"
                                                                                                                           8.0%;
                                                                                                                                                                                                                                                                                                                                                  xref="taxon:199306"
                                                                                                            0;
                                                                                                          Score 164.8; DB 7;
Pred. No. 2.5e-18;
0; Mismatches 277;
                                                                                                                                                                                                                                                                                                                                                                                                         posadasii"
                                                                                                                                                                                                                                                                        , T1 phage resistant"
posadasii spherule cDNA library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               663
                                                                                                              Indels
                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eurotiomycetes;
                                                                                                                                                750;
                                                                                                            ω
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mycelia
```

and

Ś 밁 Ś В Ş 뭐

Gaps

1558

565

to .

Ş

Š 뭥

밁

S

Ś

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
CO030342/c
                                                                                                                                                                                                                                                       JOURNAL COMMENT
                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pocus
                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     504
                                                                                                                                                                   Other_ESTs: EST808727
Contact: Gardner MJ
The Institute for Genomic Re
9712 Medical Center Drive, F
Tel: 301 838 3519
Fax: 301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                 EST808726 Coccidioides posadasii spherule cDNA library, 0.5 to 5.3 kb Coccidioides posadasii cDNA clone CIFB368 3' end, mRNA sequence. CO030342 CO030342.1 GI:48563318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24
                                                                                                                                                                                                                                                                 Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eu
Onygenales; mitosporic Onygenales; Coccidioides.
1 (bases 1 to 818)
Gardner, M.J. and Cole, G.T.
Analysis of gene expression in Coccidioides poss
spherules via expressed sequence tags
                                                                                                                                                                                                                                                                                                                                                                                    Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                                                 Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCC---CGGGGCGTCTACTCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAGCGCCGTGGCGGCGCCCGAT 2059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   recriecceaceaceaegaerroeecerceecegecearcerereroricitation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCTGGGCTATGTATGCGCCAGCGGCACCGTCGATCAGTCGGTGGTTATCCGTACGATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cecrceeareerreecercaecececececeaecreaecareereareecaree
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGCCGTGCAAATCCTCGACGGCCTGGAAGAGCACCGCGAGCGCGCATATACTCCGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGTCCAGGTTCTCGAGCGATGCTTCCCACCAGGATCCATGACGGGCGCTCCCAAACTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCCGCCTGCGTACGCGCCGCCTTCCCCGGCGCGCTCCATGACCGGCGCGCCCAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCA 1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCACAACATTTCTCCATCAAAATCAATCAAGGTCCCGAAACTACTCCACGTTGAAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGCCGGGAGAACGGACCGAGCACCTGATGATCGTCGACCTGGTCCGCAACGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGAATCGGCGCCAGATGCTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGAGAAAGAATGGGATGAGGTCATGGTGAAGGCGAATGCTGTTGCTACGGCGCTGCCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGANACAGTACATCAGCTCGTCACAACCATTCAATCCCACATCGCCCCAACGTCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGACGGATGTCAAGGAGCTCGCCGAGAACTTAATGATTGTCGATCTTATCCGCGCCGACC
                                                                                                                                     gardner@tigr.org.
Location/Qualifiers
     /dev_stage="spherules"
/lab_host="E. coli DH10B,
                                     /db_xref="taxon:199306"
/clone="CIFB368"
                                                                     /mol_type="mRNA"
/strain="C735"
                                                                                                    organism="Coccidioides
                                                                                                                                                                                                    Research
, Rockville,
                                                                                                      posadasii"
      71
     phage resistant"
                                                                                                                                                                                                      ð
                                                                                                                                                                                                      20850,
                                                                                                                                                                                                                                                                                                   posadasii mycelia
                                                                                                                                                                                                                                                                                                                                                                 Eurotiomycetes,
                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 10-JUN-2004
Try, 0.5 to 5.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    505
                                                    REFERENCE
AUTHORS
                                                                                                                  ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                RESULT 15
CO034510/c
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Sim
Matches 344;
                                   TITLE
     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   504
1 (bases 1 to 820)
1 (bases 1 to 820)
Gardner, M. J. and Cole, G.T.
Analysis of gene expression in Coccidioides spherules via expressed sequence tags
Unpublished (2003)
                                                                                                                                                                                                                                                                                                                     24
                                                                                Coccidioides posadasii
Coccidioides posadasii
Cucaryota, Fungi, Ascomycota; Pezizomycotina; El
Conygenales; mitosporic Onygenales; Coccidioides
                                                                                                                                                                  C0034510.1
```

GI:48571664

posadasii mycelia

and

Eurotiomycetes;

밁 S 밁 8 밁 ঠ 밁 გ 밁 Ś 밁 Ş 밁

ঠ

```
1439 CCTCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGGCGTCGAGTCCAAGCCCATCA
CO034510 820 bp mRNA linear EST 10-JUN-2004
EST812894 Coccidioides posadasii spherule cDNA library, 0.5 to 5.3
kb Coccidioides posadasii cDNA clone CIFBU13 3' end, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       h 8.0%;
Similarity 55.1%;
44; Conservative
                                                                                                                                                                                                                                                               GCAGCGCCGTGGCGGGCGCCCGAT
                                                                                                                                                                                                                                                                                                                       CGGAGAAAGAATGGGATGAGGTCATGGTGAAGGCGAATGCTGTTGCTACGGCGCTGCCTA
                                                                                                                                                                                                                                                                                                                                                                               AGGAGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                        TAAAGTACGGAAAGCAGCTTGAGCTAGGTGCTGGAGGGGGCGATTACTTGGCTCAGCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCTGGCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGGGGATCGTGTCCCTCTCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCTGGGCTATGTATGCGCCAGCGGCACCGTCGATCAGTCGGTGGTTATCCGTACGATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCTCGGATGGTTCGCCCTCAGCGGCGCCGACCTCAGCATCGTCATCCGCACCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGCCGTGCAAATCCTCGACGGCCTGGAAGAGCACCGCGAGCGCGCATATACTCCGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCC---CGGGGCGTCTACTCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGTCCAGGTTCTCGAGCGATGCTTCCCACCAGGATCCATGACGGGCGCTCCCAAACTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCCGCCTGCGTACGCCGCCGCCTTCCCCGGCGCCTCCATGACCGGCGCGCCCAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGAAACAGTACATCAGCTCGTCACAACCATTCAATCCCACATCGCCCCCAACGTCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACGCGCCCGTGCACCAGCTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCACAACATTTCTCCATCAAAATCAATCAAGGTCCCGAAACTACTCCACGTTGAAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rcaacaccicrececarcescrecerccaccacccescrerriceaegregaeaccr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGACGGATGTCAAGGAGCTCGCCGAGAACTTAATGATTGTCGATCTTATCCGCGCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGGAACCCTTGCCGTCAGCCCAGACAAAGAAGAAGACGAGCGGAGAAAAAGTCAGTTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGGGACCCGCCCGGGGCGGCACCGCGGAGGAGGAGGACGAGCGGCTCCGCGCCGACCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGTCGCCCGAGAGGTTTATATCCATAGATGCTGATGGCGTGGCTGAAATGAAACCAATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Vector: pExpress 1; Site_1: Not I; Site_2: Eco R Coccidioides posadasii spherule cDNA library, 0.5 to 5.kb "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="Coccidioides posadasii spherule
0.5 to 5.3 kb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 164.8; DB 7
Pred. No. 2.5e-18;
0; Mismatches 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cDNA library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1498
                                                                                                                                                                                                                                                                                                                                                                                                                                        85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              505
```

```
밁
                     Ś
                                                            밁
                                                                                     Ś
                                                                                                                            밁
                                                                                                                                                   Ş
                                                                                                                                                                                        밁
                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                      뮍
                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 344;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                             1916
                                                                                                                                                                                                                                                                          1799 GCACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCC---CGGGGCGTCTACTCCGGGG 1855
                                                                                                                                                                                                                                                                                                                                                                                                                       1679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1439 CCTCGCCCGAGCGGTTCCTCACGATCGGCGCGCGACGGCGGCGTCGAGTCCAAGCCCATCA 1498
                              2036
                                                                                                                                                                                                              1856 CGCTCGGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCG
                                                                                                                                                                                                                                                                                                                                                         1739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1619 TCAACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCT 1678
                                                                                  1976 AGGAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACG
                                                                                                                             144
                                                                                                                                                                                                                                                             264
                                                                                                                                                                                                                                                                                                                         324
                                                                                                                                                                                                                                                                                                                                                                                       384
                                                                                                                                                                                                                                                                                                                                                                                                                                                       444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      504
                                                                                                                                                                                             204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  624
                                                              84
24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fax: 301 bso va.
Email: gardner@tigr.org.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Other_ESTs: EST812895
Contact: Gardner MJ
The Institute for Genomic Research
9712 Medical Center Drive, Rockville, MD 20850, USA
Tel: 301 838 3519
                                                                                                                                              ACGADACAGTACATCAGCTCGTCACAACCATTCAATCCCACATCGCCCCCAACGTCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                             ACGCGCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCGGCACCAGCA 1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGCCGGGAGAAGGACCGGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACC 1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCAGCGCCGTGGCGGGCGCCGAT 2059
                                                                                                                            TAAAGTACGGAAAGCAGCTTGAGCTAGGTGCTGGAGGGGGCGATTACTTGGCTCAGCGAGG
                                                                                                                                                                                          GTCTGGGCTATGTATGCGCCAGCGGCACCGTCGATCAGTCGGTGGTTATCCGTACGATTG
                                                                                                                                                                                                                                                         GAGCCGTGCAAATCCTCGACGGCCTGGAAGAGCACCGCGAGCGCGCATATACTCCGGCA 205
                                                                                                                                                                                                                                                                                                                       GCGTCCAGGTTCTCGAGCGATGCTTCCCACCAGGATCCATGACGGCGCTCCCAAACTCA 265
                                                                                                                                                                                                                                                                                                                                                     TCCACAACATTTCTCCATCAAAATCAATCAAGGTCCCGAAACTACTCCACGTTGAAAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGTCGCCCGAGAGGTTTATATCCATAGATGCTGATGGCGTGGCTGAAATGAAACCAATAA
                                                            CGGAGAAAGAATGGGATGAGGTCATGGTGAAGGCGAATGCTGTTGCTACGGCGCTGCCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGACGGATGTCAAGGAGCTCGCCGAGAACTTAATGATTGTCGATCTTATCCGCGCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGGGAACCCTTGCCGTCAGCCCAGACAAAGAAGAAGACGAGCGGAGAAAAAGTCAGTTAG
GGGAATCGGCGCCAGATGCTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301 838 3519
301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /dev_stage="spherules"
/lab host="E. coli DH10B, Tl phage resistant"
/clome_lib="Coccidioides posadasii spherule cDNA library,
/clome_lib="Coccidioides posadasii spherule cDNA library,
0.5 to 5.3 kb"
/note="Vector: pExpress l; Site_l: Not I; Site_2: Eco RV;
Coccidioides posadasii spherule cDNA library, 0.5 to 5.3
kb "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Coccidioides/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:199306"
/clone="CIFBU13"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /mol_type="mRNA"
/strain="C735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 164.8; DB 7;
Pred. No. 2.5e-18;
0; Mismatches 277;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        posadasii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  565
                                                                                                                                                                                           145
                                                                                                                                                                                                                         1915
                                                                                                                                                                                                                                                                                                                                                                                       325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1558
                                                                                                                            85
                                                                                                                                                                                                                                                                                                                                                                                                                                                     385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   505
```

Search completed: October

υ •

2005, 09:01:07

Job time : 7804.14 secs

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Command line parameters:

-MODEL=frame+ p2n.model -DEV=xlh
-O=/cgn2 1/USPTO gpool h/US10089514/runat 04102005_105744_8033/app query.fasta_1.1621
-O=/cgn2 1/USPTO gpool h/US10089514/runat 04102005_105744_8033/app query.fasta_1.1621
-DB=GenEmb1 -OFMT=fastap -SUFFIX=rge -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR SCONE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER=US10089514_8CGN 1 1 8782 @runat 04102005 105744 8033 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPBILOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN TIMEOUT=30 -THREADS=1 -XGAPEDF=10 -XGAPEXT=0.5 -FGAPOD=6
-FGAPEXT=7 -YGAPOD=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               on:
                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
     3573
3573
3573
3127.5
                                                                                          Score
       100.0
100.0
100.0
87.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                            Match Length DB
                                                                                                                                                                                                                                                    8:
9:
10:
11:
12:
13:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-2
3573
1 MRTILIIDNYDSFTHNLFQYI......VVKARAMVTALDGSAVAGAR 686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   October 5, 2005, 05:31:11 ; Search time 10157.2 Seconds (without alignments) 3272.568 Million cell updates/sec
                                                                                                                Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenEmbl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4708233 seqs, 24227607955 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BLOSUM62
                                                                                                                                                                                                                                             gb_pat: *
gb_ph: *
gb_ph: *
gb_pr: *
gb_rc: *
gb_rc: *
gb_rc: *
gb_rc: *
gb_rc: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                               gb_ba:*
gb_htg:*
gb_in:*
                                                                                                                                                                                                                                                                                                                                                                                                                           om:
       2061
2061
5251
2660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd.
          --66
       BD178313
BD093914
AB116234
SVU21728
                                                                                            ij
                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9416466
BD178313 Transform
BD093914 Transform
AB116234 Streptomy
U21728 Streptomyce
                                                                                          Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
```

4 4 4 4 4 4 3 3 3 3 3 3 3 3 5 7 7 7 7 7 7 7 7 7 7 7	5 6 7 7 9 9 11 11 11 11 11 11 11 11 11 11 11 11
1487 1487 1487 1487 1487 1487 1487 1487	3127.5 1816 1816 1766 1766 1766 1766 1635.5 1606.5 1596.5 1596.5
41.6 1983 41.6 1983 41.6 1983 41.6 339150 41.6 339980 41.6 349980 41.3 349984 41.3 349944 41.3 349944 41.3 349944 41.3 349944 31.0 2760 36.0 2760 36.0 2760 36.0 2760 36.0 3080 31.4 100000 31.3 104045 31.3 1100000 31.3 1100000 31.3 1100000 31.3 1100000 31.3 1100000 31.3 1100000	6 30 3 3 4 4 4 8 8 8 5 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
	4944444444
AX121195 AX064417 AX064419 AX764213 AP005277 AP005277151 AX127146 BX571871 AX770909 AX775866 BX571871 AX775866 BX776586 BX776586 CQ363747 AE017283 21 AP0064977 AE017283 21 AP0064977 AE017283 21 AP0064977 AR198356 BX248359 BX248359 B	AF262220 AR198361 SFUG0417 STMPABA SGR300302 AY310323 AP003593 STH575648 AP005225 AP005217 BD163312
195 Sequence 117 Sequence 117 Sequence 117 Sequence 118 Sequence 213 Sequence 217 Coryneba 1151 Coryneba 1161 Sequence 217 Photorha 209 Sequence 871 Photorha 866 Sequence 8702 Arabidop 7702 Arabidop 7704 Arabidop 7707 Arabidop 770 Arabidop 770 Arabidop 770 Arabidop 771 Arabidop	AF262220 Streptomy AR198361 Sequence U60417 Streptomyce M93058 Streptomyce AJ300302 Streptomy AY310323 Streptomy Continuation (18 o AP003593 Nostco sp AJ575648 Streptomy AP005027 Streptomy AP005027 Corynebac BD163312 Novel no.)

ALIGNMENTS

																									_
						COMMENT			JOURNAL		TITLE	AUTHORS	REFERENCE			ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION		DEFINITION	LOCUS	BD178313	*****
PI MURAKAMI PC C12N15/61,C12N1/15,C12P17/14/	KOJI YANAI, NAOMI SUMIDA, MANAE	22-MAR-2001 JP 01P 082227	22-MAR-2002 WO 2002JP002782	03-OCT-2002	WO 02077244-A/1	OS Streptomyces venezuelae	TATSUKI MORIYA, TAKESHI MURAKAMI	MEIJI SEIKA KAISHA LTD,KOJI YANAI,NAOMI.SUMIDA,MANABU WATANABE	Patent: WO 02077244-A 1 03-OCT-2002;	the same and novel biosynthetic gene	ansformant producing PF1022 subs	Yanai, K., Sumida, N., Watanabe, M., Moriya, T. and Murakami, T.	(bases 1 to 2061)	Streptomycineae; Streptomycetaceae; Streptomyces.	Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;	Streptomyces venezuelae	Streptomyces venezuelae ,	WO 02077244-A/1.	BD178313.1 GI:30015578	BD178313	the same and novel biosynthetic gene.	Transformant producing PF1022 substance	BD178313 2061 bp		
MURAKAMI C12N15/61,C12N1/15,C12P17/14//(C12N1/15,C12R1:645),(C12P17/14,	KOJI YANAI, NAOMI SUMIDA, MANABU WATANABE, TATSUKI MORIYA, TAKESHI							, NAOMI. SUMIDA, MANABU WATANABE,	02;	ene	Transformant producing PF1022 substance and process for producing	Moriya, T. and Murakami, T.		e; Streptomyces.	acteridae; Actinomycetales;						ene.	stance and process for producing	DNA linear PAT 16-APR-2003		

Qy 241 Gly	Qy 221 ArgGl:	Qy 201 Ser	Qy 181 MetAl Db 541 ATGGC	Qy 161 Proj 	Qy 141 Leu Db 421 CTC	Qy 121 Pros Db 361 CCCT	Oy 101 Proj Db 301 CCC	Qy 81 Cys	Qy 61 ArgAs Db 181 CGGGA	Qy 41 Pro	Οy 21 Gly Db 61 GGC	Qy 1 Met Db 1 ATG	DB: US-10-089-514-2 (ilar Simi	ORIGIN Alignment Scores:	source	FH FT	25
llaSerArgPheSerPheLeuGlyA]]yCysLeuProG1yG1uG1yThrTh 	erProTyrGluLeuHisValArgArgV CCCCGTACGAACTCCACGTGCGCCCCC	etAlaAsnPheArgAspLeuAlaLeuA 	roLeuTrpGlyValGlnPheHisProG ccTrgTgGGGCGTCCAGTTCCACCCGG	JeuGluProLeuAlaTrpSerAspAspG TCGAACCCCTCGCCTGGAGCGACGACGACG	erProPheThrAlaValArgTyr ccccgTTcAccgccGTGCGCTAC	roMetHisGlyArgValSerGluValArgHi CATGCACGGCCGGGTCTCCGAGGTGCGGCA	.euGlyHisGlnGlyIleAlaGlnL 	gAspPheGlyIleSerArgArgAlaIleThrAs GACTTCGGAATCAGCCGCCGGCGATCACCGA	roValGluAspPheAspAlaIleValValSerP CCGTCGAGGACTTCGACGCGATCGTCGTGTCCC	lyGluAlaThrGlyGlnProProValValProAsnAspAlaAs 	MetArgThrLeuLeuIleAspAsnTyrA ATGCGCACGCTTCTGATCGACAACTACG	6	2.06e-166 3573,00 100.00% 100.00% 100.00%	/db_xref="taxon:54571	12061 /organism="Streptomyces /mol type="genomic DNA"	and novel biosynthetic gene Key Location/Qualif CDS (1). (2058).	
AlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr	rgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu 	rGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg 	.aAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp 	ProGluSerIleGlySerAspPheGlyArgGluIle 	laTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys 	HisserfeualaalaThraspfeuProaspGlu 	ArgHisThrGlyGluAspValPheArgGlyLeu GGCACACCGGCGAGGACGTCTTCCGGGGCCTC	SLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu 	eThrAspSerGlyLeuBroValLeuGlyVal 	alSerProGlyProGlySerProAspArgGlu 	alValProAsnAspAlaAspTrpSerArgLeu 	tArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle 		Length: 2061 Matches: 686 Conservative: 0 Mismatches: 0 Indels: 0	-	es venezuelae")"	ne Dualifiers 58).	PF1022 substance and process for (
	240 I	220	2000	180	160	140	120 I	100 300	240	180	120	200	н ,	0 1 0				
Qy 601 Thry Db 1801 ACC		1681	541 Asns 1621 AACA	521 G1y/ 1561 GGCC	1501	481 1441	1381	1321	421 1261	401 1201	381 1141	361 1081	1021	Qy 321 Alac Db · 961 GCGC	Qy 301 Proc Db 901 CCCC	Db 841 CGGC	781	721
ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu	AlacysValArgAlaAlaPl CCTGCGTACGCGCCGCCTT	CCCGTGCACCAGCTGGTGTCT	SerValCysAlaIleGlySe	GlyArgGluLysAspArgAlaGluAsnLeuMetILeValAspLeuValArgAsnAspLeu	GLYTTARAPEOARGGLYGLYTTARABGLIUGLUARGGGCTCCGCCGCCAAC	SerProGluArgPheLeuThTI1eGLyALAABGLYGIYVALGUSETLYSBPOIL		ASIMPE VALITITATAR OF THE SUMMALITIES AND ENTRY SEPTEMBERS OF THE SUMMALITY AND ENTRY SEPTEMBERS OF THE SUMMALITY AND ENTRY SEPTEMBERS OF THE SUMMALITY SEPTEMBERS OF THE	I LeAspGluCysLeuLysG nTCGACGAGTGCCTCAAGGI	AlaAlaAlaClyPheGlyProLeuAlaArgAlaArgHiBAspLyaAspAlaTyrLeuLy	CTGGCCGTCCGCGCCCCGG	ArgGlyHisAspAspGlyA.			3luLeuProPheGluPheA: 3AACTGCCCTTCGAGTTCA	CCCCCTTCTTCAACTACC	cecerceceacescerce	SCCTCGCGCTTCTCCTTCC
ouGluGluGlyProArgGl 	neProGlyGlySerMetThi CCCCGGCGGCTCCATGACO	>rThrIleArgGlyArgLet GACCATCCGGGGACGGCTK	PrValHisValProArgLe	luAsnLeuMetIleValAsp)rAlaGluGluAspGluArc	eG1yAlaAspG1yG1yVa 	aleubeuGlupheProGlu	AGGCGACGGCCCTGCCGCTC	ulleArgAsnGlyGluSe 	euAlaArgAlaArgHisAsp GGCCGCGCGCGCCACGAC		laArgAlaTrpLeuArgGlu		aHisArgSerProHisPro 	<pre>snLeuGlyTyrValGlyTy: \ccrcggcTacGTcGGcTa</pre>		TOTAL PROPERTY OF THE PROPERTY	CGGCGACGACCGCGGCCC
yValTyrSerGlyAlaLeu 62 	AlaAlaCysValArgAlaAlaPheProGlyGlyGsrMetThrGlyAlaProLysLysArg 6		, p 5			ILELYS 5	CGCC 1		4 4	# — ⊕ 4 – ⊔	ი—¤			AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe 340	ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys 320	CGGCGCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCGCC 900		

Db 781 TACCGCCGACGGCGACGGCGTCCTCCGACGGCTCCGACCGA	Db 1 ATGCGCACGCTTCTGATCGACACTACGACTCGTTCACCACAACCTGTTCCAGTACATC 60 Qy 21 GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTTpSerArgLeu 40 Qy
781 281 841 301 901 321 961 341 1021 361	1 ATGCGCACGCTTCTGATCGACAACTACGACTCCGTTCACCCACAACCTGTTCCAGTACATC
781 281 841 301 901 321 . 961 341	1 Mot Braffir: 0:: 10:: 11 0 Nasy Nasy () 0:: 12 0 0:: 12
781 281 841 301 901 321 961	089-514-2 (1-686) x BD093914 (1-2061)
781 281 841 301 901 321	Mismatches: Indels: Gaps:
781 281 841 301 901	2.06e-166 3573.00 100.00%
781 281 841 301	Alignment Scores:
781 281 841	/moi_type="genomic UNA" /db_xref="taxon:54571" ORIGIN
781 281	source 12061 /organism="Streptomyces venezuelae"
	CDS L
Oy 261 TyrhrgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgTh	
Qy 241 GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr	PR 29-SEP-1999 JP 99P 276314 PI KOJI YANAI, KAORU OKAKURA, SHOHEI YASUDA, MANABU WATANABE, KOICHI PI MIYAMOTO, BI NAOYI MIDA TAKESUI MIDAYAMI
	PN WO 0123542-A/1 PD 05-APR-2001 PF 29-SEP-2000 WO 2000JP006783
OV 221 ArgglyCysLenProglyGluGlyThrThrPheTrnLenAsnSerSerValLenGl	MANABU WATANABE, KOICHI MIYAMOTO,NAOKI MIDO,TAKESHI MURAKAMI COMMENT OS Streptomyces venezuelae
	Ā
Oy 181 MethlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAr	
	Streptomyces venezuelae SM Streptomyces venezuelae
Db 421 CTCGAACCCCTCGCCTGGAGGACGACGGGGTCGTCATGGGCCTGCGGCAGCAGAGAAG	ACCESSION BD093914 VERSION BD093914.1 GI:22639502 KEYWONDS WO 0123542-A/1.
Qy 141 LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGl	Transformants that produce secondary metabolites modififunctional group(s) and novel biosynthesis genes.
Qy 121 ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu	BD093914
Qy 101 ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu	Oy 681 AlaValAlaGlyAlaArg 686
Qy 81 CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu	Qy 661 GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySer 680
Qy 61 ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal	Oy 641 AlaAspGlyGlnAlaGlubheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu 660
Qy 41 ProValGiuAspPheAspAlaIIeValValSerProGlyProGlySerProAspArgGlu	1861
<u>.</u>	

```
RESULT 3
AB116234
LOCUS
                          SOURCE
ORGANISM
                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                              ACCESSION
                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                     2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1921
                                                                                                                                                                                                                                                                                                                                                                                                                      681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    401
                                                                                                                              protein,
AB116234
                                                                                                                                                                         AB1162034 BCT 03-JUL-2004 Streptomyces venezuelae papA, papC, papB, ORFIV genes for 4-amino-4-deoxychorismate synthase, 4-amino-4-deoxyprephenate dehydrogenase, 4-amino-4-deoxychorismate mutase, hypothetical
                        Streptomyces venezuelae
Streptomyces venezuelae
                                                                                                                                                      dehydrogenase, 4-amino protein, complete cds.
Bacteria;
                                                                                                      AB116234.1 GI:47846865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys
                                                                                                                                                                                                                                                                                                                                                                                           AlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                   GCCGTGGCGGGGGCGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGACGGCCAGGCGGAGTTCGGCGTCGGCGGGCGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGATGGTTCGCCCTCAGCGGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCCGTGCACCAGCTGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AACAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGACCCGCCCCGGGGCGCACCGCGGAGGAGGACGAGCGGCTCCGCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGTCGAGTCCAAGCCCCATCAAG
Actinobacteria;
                                                                                                                                                                                                                                                                                                                                                                   2058
                                                                                                                                                                                                                                                                                                                                                                                                                      686
Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                         SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (01-AUG-2003) Koji Yanai, Meiji Seika Kaisha, Microbiological Resources and Technology Laboratories; Odawara-shi, Kanagawa 2500852, Japan (E-mail:koji_yanai@meiji.co.jp, Tel:81-465-37-5106,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Para-position derivatives of fungal anthelmintic cyclodepsipeptides engineered with Streptomyces venezuelae antibiotic biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptomycineae; Streptomycetaceae; Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Murakami,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yanai, K., Sumida, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fax:81-465-37-6397)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15184904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biotechnol.
                /gene="papB"
/codon_start=1
/evidence=experimental
/transl_table=11
/product="4-amino-4-deoxychorismate mu/
protein_id="BAD21142.1"
/db_xref="GI:47846868"
                                                                                                                                                                                                                                                                                                                                                                                /gene="papC"
2708. 3676
/gene="papC"
/gene="papC"
/gene="papC"
/codon_start=1
/evidence=experimental
/transl_table=11
/product="4-amino-4-deoxyprephenate dehydrogenase"
/product="4-amino-4-deoxyprephenate dehydrogenase"
/product="4-amino-4-deoxyprephenate dehydrogenase"
/protein_id="BAD21141.1"
/db_xref="G1:47846867"
/translation="MSGrsprSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPD

/translation="MSGrsprSVVVGGSGAVGGMF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Streptomyces
/mol_type="genomic DNA"
/db_xref="taxon:54571"
651. .2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AMVFGIPEAAAGFGPLARARHDKDAYLKRIDECLKEIRNGESYEICLTNMVTAPTEAT
ALPLYSALRAISPVPYGALLEFPELSVLSASPERFLTIGADGGVESKPIKGTRPRGGT
ALEDERLRADLAGREKDRAENLMIVDLVRNDLNSVCAIGSVHVPRLFEVETYAPVHQL
VSTIRGRLRPGTSTAACVRAAFPGGSMTGAPKKRTMEILDRLEEGPRGVYSGALGWFA
LSGALDLSIVIRTIVLADGQAEFGVGGAIVSLSDQEEEFTETVVKARAMVTALDGSAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MRTILIDNYDSFTHNLFQYIGEATGQPPVVVPNDADMSRLPVED
FDAIVVSPGFGSPDRERDFGISRRAITDSGLFVLGVCLGHQGIAQLFGGTVGLAFEPM
HGRVSEVHTGEDVFRGLFSPFTAVRYHSLAATDLPDELEPLAWSDDGVVWGLHAFEM
PLWGVGFHPESIGSDFGREIMANFRDLALAHHRARRHGADSPYELHVRRVDVLFDAEE
VRRGCLFGEGTTFMLDSSSVLEGASRFSSFLGDDRGFLABYLTYXEXDAGVVSVRGSDGT
TTRTRRFFFAVLEEQLERRKYVPVSPELFFEFMLGYVGYLGYELKAETTGDAHRSPHD
DAAFLFADRAIALDHQEGCCYLLALDRRGHDDGARAMLRETAETLTGLAVRAFAEPTP
DAAFLFADRAIALDHQEGCCYLLALDRRGHDDGARAMLRETAETLTGLAVRAFAEPTP
                                                                                                                                                                                                       /gene="pap8"
3673. .3984
                                                                                                                                                                                                                                                                                                             GMAAELAAHAPGVQHVGLNPMFAPAAGMTGRPVAAVVTRDGPGVTALLRLVEGGGGRP
VRLTAEEHDRTTAATQALTHAVLLSFGLALARLGVDVRALAATAPPPHQVLLALLARV
LGGSPEVYGDIQRSNPRAASARRALAEALRSFAALVGDDPDRADAPGRADAPGHPGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="papA"
651. .2711
                                                                                                                                                                                                                                                            3673. .3984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2708. .3676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
/product="4-amino-4-deoxychorismate
/protein_id="BAD21140.1"
/db_xref="GI:47846866"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="papA"
/codon_start=1
/evidence=experimental
                                                                                                                                                                                                                                                                                  DGAGNLDGVFGELRRLMGPELAAGQDHCQELFRTLHRTDDEGEKDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sumida, N., Okakura, K., Moriya, T., Watanabe,
translation="MTEQNELQRLRAELDALDGTLLDTVRRRIDLGVRIARYKSRHGV/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5251)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22 (7), 848-855 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Okakura, K., Moriya, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           venezuelae"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Watanabe, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              synthase"
                                                                        mutase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kayama,
```

0y 1 0b 11 0y 2	Qy 1		Qy 1		D	Qy Db 8	Qy Db 7	Qy da	Qy 6	US-10-089-5	Best Local Query Match DB:	Alignment S Pred. No.: Score:					CDS	gene
MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp 	10/1 CTCGAACCCCTCGCCTGGAGCGAGCGAGGGCTCGTCATGGGCCTGCGGCACGAGAAG 1130 161 ProLeuTrpGlyValGlnPheHisProGluSerTleGlySerAspPheGlyArgGluIle 180	LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys 1	دبو دب	12	81 CysLeuGlyHisGlmGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu 100 	61 ArgAmpPheGlyIleSerArgArgAlaIleThrAmpSerGlyLeuProValLeuGlyVal 80 	41 ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu 60	21 GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu 40	1 MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle 20) x AB116234 (1-5251)	Best Local Similarity: 100.00% Mismatches: 0 Query Match: 100.00% Indels: 0 DB: Gaps: 0	5.72e-166 Length: 3573.00 Matches:		YTCSQIVLDEIRRSWSGRPVLERVYTSHEILLLLPYERPLVREGAHGTYSGSAHFGWIG ERTTREDGAHVALAQAVHAPVGVKLGPTVSPEDAVALSRSLNPEGVPGRLTFIVRFGA KEVDELLPPVVRAVARHGAPVVMLCDPMHGNGLKLAGHKTRLIEPNRAETAAFVRTLR EHGQWPAGLHLELTPDPVTECVSELDRPRPRFTDYRSCTGNFRLNPEGSADMYTHFISIL.	/db_xrefe"GI:47846869" /translation="MHATTTLAALTGRTAAQQPYWPDPDAVDTVERELAGLPVLTPED EVVDLMNGMALVARGAALLVQGGDCAERFHEAVPDLVRRKVDNLQGLAAIMRAGSGLP AVALGRIAGQYGKPRSSPFSTEESGAGRKWPSYCGDAVNEPEFPAARTTPEPRRLITA	/evidence=not_experimental /transl_table=11 /product="hypothetical protein" /protein_id="BAD21143.1"	/ Jenne="Okriv" 4065. 5243 /gene="Okriv" /codon_start=1	PMMQPGRVSLVKDRAARYAADHGLDESFLVNLYDVIITEMCRVEDLVMSRESLTAEDR R" 40655243
\$ B \$	Qу	B &	y dg	Db Q	B &	B &	p Q	B Q	p Q	DЬ	δ δ	. Q	D Qy	da Vo	Db Qy	B &	ΩУ	дb
541 AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr 560	521 GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu 540 	501 GlyThrArgProArgGlyGlyThrAlaGluGluAapGluArgLeuArgAlaAapLeuAla 520 	481 SerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLys 500	461 IleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAla 480 	441 AsnMetValThrAlaProThrGluAlaThrÁlaLeuProLeuTyrSerAlaLeuArgAla 460 	421 ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr 440	401 AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys 420		61 31	71	1611 GCGGAGACCCACCGGCGACCCCCGCGCACCCCCGACGCCCCCGCGTTCCTCTTC 1670 341 AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp 360	21 AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe	301 ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys 320 	281 ArgArgProPhePheAsnTyrLeuGluGlnLeuGluArgArgArgValProValAla 300 	261 TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr 280 	241 GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr 260	221 ArgG1YCYeLeuProG1yG1uG1yThrThrPheTrpLeuAspSerSerSerValLeuG1u 240 	

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 4
SVU21728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                            SgS
                                                                                gene
                                                                                                                                                                                                                                                                                                SdD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brown, M.P., Aidoo, K.A. and Vining, L.C.
A role for pabAB, a p-aminobenzoate synthase gene of Streptomyces
venezuelae ISP5230, in chloramphenicol biosynthesis
Microbiology 142 (Pt 6), 1345-1355 (1996)
96262706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptomyces venezuelae

Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;

Bacteria; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                  Nove Sc
On Nov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptomyces venezuelae complete cds. U21728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (26-FEB-1995) Biology,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomycineae; Streptomycetaceae; 1 (bases 1 to 2660)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8704974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SVU21728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Brown, M.P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U21728.1 GI:1680048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGTGGCGGGCGCCCGA 2708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGCCTGCGTACGCGCCGCCGTCCCCGGCGGCGCTCCATGACCGGCGCGCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlavalAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGGAGTTCACCGAGACCGTGGTAAAGGCCCCGCCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGCGTCTACTCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 2660)
                                                                                                                                                                                                                                                                                                                                                                                                            Scotia B3H 4H6, Canada
ov 21, 1996 this sequence version replaced gi:1680040.
Location/Qualifiers
/gene="pabAB"
/codon_start=1
                                                                                                                  /product="unknown"
/protein_id="AAB30311.1"
/protein_id="AAB30311.1"
/db_xref="GI:1680049"
/ta_xref="GI:1680049"
/ta_xref="GI:00="GSAEVVALPFLGEHGDLRIRSKTGWLIRFGERSVLFAADSTNIS
/ta_xref="GI:00="GSAEVVALPFLGEHGDLRIRSKTGWLIRFGERSVLFAADSTNIS
PTMYTKVAEVIGPVDTVFIGMSSIGAAASWIYGFLYGEFLDRRTDQSRRLNGSNFPQA
REIVDALEPDEVYVYAMGLEPWMGVVMAVDYDESHPAIVDSDLLVRHVQDKGGTAERL
                                        /gene="pabAB"
651. .2660 .
                                                                                                    HLRRTLRL"
                                                                                                                                                                                                                                                                                                        /db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                  organism="Streptomyces venezuelae"
|mol_type="genomic DNA"
|strain="ISP5230"
                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                            /note="ORF1"
                                                                                  .2660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         p-aminobenzoic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2660 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dalhousie University, Halifax,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         acid synthase (pabAB) gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCT 22-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     600
                                        В
                                                                  Ş
                                                                                                                      밁
                                                                                                                                                      á
                                                                                                                                                                                              뭕
                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-2 (1-686) x SVU21728 (1-2660)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                1107
                                                                                                                                                                                                                                                                            1047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scores:
                                                                                                                                                                                                                                    161
                                                                                                                                                                                                                                                                                                                141
                                                                                                                                                                                                                                                                                                                                                      987
                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 768 CCCCTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCGGAACCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             \vdash
                                                                                                                                          MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                                                                                                    LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
    ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                                                                      ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCGAGGCCACCGGGCAGCCCCC---GTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCCAGAACCTGTTCCAGTACATC
                                                                SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                  CTCGAACCCCTCGCCTGGAGCGACGACGGCGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                      CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAG
                                                                                                                                                                                                                                                                                                                                                                            ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGGACTTCGGGATCAGCCGGCCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="mrtilidnydsftonlfqyigeatgqppvvpndadwsrlpledf
daivvsprepgspreddfisrraithedelelawsdgvlglgaepmhgrysevr
httgedverlespftarvyhslaathledelelawsdgvlgvgvgrdrafer
egaifwldsssylegaspfsftoddroflayltyrvdydyddeevrraacpa
gaatfwldsssylegaspfsflodroflayltyrvadgvgyrgsdgtttrdaatl
esylegoleppagpvapdlpfefnldgvgylgyelkaettgdpapdaplaphdaflfa
eaildhgegccyllalderghddgarwltetrætiltglavryrpreptpanvegp
raildhgegccyllalderghddgarwltetrætiltglavryrpreptpanvegpp
aaagfgelarahdkdarghdgarawltetrætiltglavryrpreptsgalrrispvegg
allefpelsvlsasperfitigdogvescitinvtapteatalplysalrrispvegg
allefpelsvlsasperfitigdogvescitinvtapteatalplysalrrispvegg
allefpelsvlsasperfitigdogvescitinvtapteatalplystirgterstact
raenlmivdlvendlinsvcaigsyhverlegegrgvlfgalgwfalsgadlsivirtivla
raenfoggsmgapkkrpmeiidrlegegrgvlfgalgwfalsgadlsivirtivla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/product="p-aminobenzoic
/protein_id="AAB30312.1"
/db_xref="GI:710438"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dgraefgvggaivslsdqeeefrqtvvkaramvtaldgsavagar"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.8e-144
3127.50
91.40%
90.09%
87.53%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acid synthase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42
17
```

-CTCTCGGCGGAA

926 100

986

80 827

887

40

710

60 767

240

180

1106 160 1046 140

1166

200

1226

```
밁
                                                       ঠ
                                                                                문
                                                                                                 S
                                                                                                                           밁
                                                                                                                                             S
                                                                                                                                                                       문
                                                                                                                                                                                      र्
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                      ફ
                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
               δ
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                2220
                                                                                                                            2160
                                                                                                                                                                        2100
                                                                                                                                                                                                                   2040
                                                                                                                                                                                                                                                               1980
                                                                                                                                                                                                                                                                                                           1920
                                                                                                                                                                                                                                                                                                                                                                                                                                               1767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1707
                                                                                                                                                                                                                                                                                                                                                      1878
                                                                                                                                                                                                                                                                                                                                                                                                    1827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1287
                                                                                                                                                 521
                581
                                                                                                      541
                                                                                                                                                                                             501
                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                    461
                                                                                                                                                                                                                                                                                                                                441
                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                         401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                     GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                              AlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThr
                                                                                 AACAGCGT
                                                                                           AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                           GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                  GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                                                             SerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLys
                                                                                                                                                                                                                                                                          IleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAla
                                                                                                                                                                                                                                                                                                                     AsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAla
                                                                                                                                                                                                                                                                                                                                                                 ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                              AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGGAGACCACCGGCGACCCCGCAGTACCGGCCCCGCACCCCGACGCGCGTTCCTTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCCGACCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGCGACCCTCTTCAGCTACCTGGAGGAGCAGCTCGAACCGCCGGCGGGTCCCGTCGCC
                                                                                                                                                                                                                                                             ATCAGCCCCGTCCCGTCTGGCGCCCTGCTCGAGTTCCCCGAGCTGTCGGTGCTCAGCGCC
                                                                                                                                                                                                                                                                                                         AACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCGCTGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCTGCCGTCCGCGTCCGGCCGAGGCCGACCCCCATGGTCTTCGGGGTCCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGCCTCGCCGTTCTCCTTCCTCGGCGACGACCGCGGCCCGCTCGCCGAGTACCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -TCGGCGCTCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                CTTCGAGGTGGGAGACCTC
                                                                                                                                                                                                                                                                                                         1979
                                                                                                                                                                                            520
             600
                                    2339
                                                                                                   560
                                                                                                                                                                      2159
                                                                                                                                                                                                                  2099
                                                                                                                                                                                                                                       500
                                                                                                                                                                                                                                                             2039
                                                                                                                                                                                                                                                                                                                                                     1919
                                                                                                                                                                                                                                                                                                                                                                                                 1877
                                                                                                                                                                                                                                                                                                                                                                                                                                             1826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                       JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                 REMARK
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 5
AF262220
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       641
                                                                                                                                                                                                  St. Halifax, NS B3H 4J1, Cana
Sequence update by submitter
On Jun 5, 2001 this sequence
Location/Qualifiers
                                                                                                                                                                                                                                      Submitted (05-JUN-2001) Biology, St, Halifax, NS B3H 4J1, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomyces venezuelae
Bacteria; Actinobacteria
                                                                                                                                                                                                                                                                                           st,
                                                                                                                                                                                                                                                                                                                  He, J., Magarvey, N.A. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AF262220 1
Streptomyces venezuelae
partial sequence.
AF262220
                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                         Submitted (01-MAY-2000)
                                                                                                                                                                                                                                                                                                                                                                  21461106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF262220.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCAGTGGCGGGCGCCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCCTGCGTACGCGCCCCCCTTCCCCGGCGCGCTCCATGACCGGCGCGCCCCAAGAAGCGA
                                                                                                                                                                                                                                                                     (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                          (bases 1 to 14159)
                                                                                                                                                                                                                                                                                          Halifax, NS B3H 4J1,
                                                                            product="CmlG"
                                                                                                                                    'map="adjacent to
                                                                                                                                                        organism="Streptomyces/mol_type="genomic DNA"/strain="ISP5230"
                                                                                                 codon_start=1
                                                                                                               function="essential
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:14290414
                                                                                                                                                xref="taxon:54571"
                                                                                          table=11
                                                                                                                                                                                                                                                                      and Vining, L.
                                                                                                                                                                                                                                                                                                                            and Vining, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               686
                                                                                                                                                                                                                                                                                            Biology,
, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14159
                                                                                                                                  pabAB"
                                                                                                                                                                                                                 version
                                                                                                              for
                                                                                                                                                                                                                                                                      'n
```

```
He,J., Magarvey,N., Piraee,M. and Vining,L.C.
The gene cluster for chloramphenicol biosynthesis in Streptomyo venezuelae ISP5230 includes novel shikimate pathway homologues a monomodular non-ribosomal peptide synthetase gene Microbiology 147 (Pt 10), 2817-2829 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteria; Actinobacteria; Actinobacteridae; Actin
Streptomycineae; Streptomycetaceae; Streptomyces
1 (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGACGGCCGGGCCGAGTTCGGCGTCGGCGGGCGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGATGGTTCGCCCTCAGCGCCGCCGCCCGACCTCAGCATCGTCATCGCCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIleValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTTACCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGGAGTTCAGGCAGACCGTGGTCAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                       /protein_id="AAG21974.1"
/db_xref="GI:10716944"
/translation="mfAGSPGAFGFTLRPRALAVRDIHSFLADLGMDCDVNPCTAFV
/translation="mfAGSPGAFGFTLRPRALAVRDIHSFLADLGMDCDVNPCTAFV
GTVEPGRVEDPAAMREFVARLGLTRALADLVEVAEEDVVVTLDPRPGPVEGGPAELAD
LVTAYINSR PLRIDEAVRLAYMRHTDGEYLVFVKFSHLIVDLADVVDLLRQIRAHLRG
DTPPGRIGSRYRHHARTVEQYTALPAADPAEVTRALGELPVPGRKGIPTISASVEEWL
PLREGVTFDELLSAVTGVLLPALGGGLVLQYPYSRWEFATKGGYYVEIKPLVVRPGLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14159 bp DNA chloramphenicol
                                                                                                                                                                                                                                                                                                                                                                                                                                                   venezuelae'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dalhousie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Dalhousie
                                                                                                                                                                                                                                                                             chloramphenicol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    replaced.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  University,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          University,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gi:10716943.
                                                                                                                                                                                                                                                                             biosynthesis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BCT 09-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene cluster,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Oxford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oxford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      640
```

153 153 213 213	: 1.331 311 311 311 311 311 311 311 311 31	misc_feature misc_feature misc_feature misc_feature N N ment Scores:	feature feature feature feature feature feature feature feature feature	SDYTPI VPVRS: "CDS 3498.
MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle 20		adenylation domain adenylation domain thiolation domain"	** ** ** ** ** ** ** ** ** <\\\\\\\\\\\	MSDLDAFARAFTSGRMPRV PPLLRMQYKRGFLSPGAA
Q	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	D	2	Q B
361 ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr 380	321 AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe 340			:::

```
RESULT 6
AR198361
LOCUS
DEFINITION
ACCESSION
VERSION
                                                                REFERENCE
AUTHORS
                                                                                                                                  KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                            ક
                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                             10022
                                                                                                                                                                                                                                                                                        10142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9962
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9380
                                                                                                                                                                                                                                                                                                                        681
                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                             641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             441
                                                                                                                                                                AR198361
Sequence 14
AR198361
AR198361.1
1 (bases 1 to 2220)
1 (bases 1 to 2220)
Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, F., Barriere, J.-C., Debussche, L., Famechon, A., Paris, J. Dutruc-Rosset, G.
Streptogramins for preparing same by mutasynthesis
                                                                                            Unclassified.
                                                                                                                              Unknown
                                                                                                                  Unknown
                                                                                                                                                                                                                                                                                                                                                     AlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                                                                                                                        GCAGTGGCGGGCGCCCGA 10159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTTACCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrMetGluIleIleAspArgLeuGluGlyProArgGlyValTyrSerGlyAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGACCCGCCCGGGGCGCACCGGCGGAGGAGGACGAGCGGCTCCGCGCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCAGCCCGTCCCGTCTGGCGCCCTGCTCGAGTTCCCCGAGCTGTCGGTGCTCAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGGAGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCGGCCGGCTTCGGCCCCCTGGCTCGCGCACGACCACGACAAGGACGCC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeu
                                                                                                                                                                                                    from
                                                                                                                                                                  GI:20248210
                                                                                                                                                                                                  patent
                                                                                                                                                                                                                                                                                                                        989
                                                                                                                                                                                                 2220
US 63
                                                                                                                                                                                                  6352839.
                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCGGGCGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                    linear
                                            , Crouzet,
                                                                                                                                                                                                                    PAT
                                                                                                                                                                                                                   20-APR-2002
                                                            `u
;
                                                                                                                                                                                                                                                                                                                                                                                                                         10081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9661
                                                                                                                                                                                                                                                                                                                                                         10141
                                                                                                                                                                                                                                                                                                                                                                                         680
                                                                                                                                                                                                                                                                                                                                                                                                                                                             660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
FEATURES
                          밁
                                            5
                                                                                         밁
                                                                                                                  Ś
                                                                                                                                                    g
                                                                                                                                                                                         δ
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                5 B 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                          950
                                                           236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             130
                                                                                                                                                                                                                                                                   194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Patent:
                                            SerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeu
                                                                                                                  AlaGluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSer
||||:::
                                                                                                                                                               AlaArgArgHisGlyAlaAspSerPro------
                                                                                                                                                                                                                                                                                                   CACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                           GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyLeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProGluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dederiereceredecentes de la desercitación de la deserción de l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCGACACCGACCTGGGCCTCAGCCGGCGGGTGATCACCGAATGGGACCTGCCGCTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgGluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeu
::: ||| | || :::|||| || || || :::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGAGGTGAACGGCGCCGCTCGTCGTCGCAACGACGACGCACCCGCACCTGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyGluAlaThrGlyGlnProProValValValProAsnAsp-----AlaAspTrpSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGACGCCGCTTCACCGCCCTGTTCGCCGACGCCCCGGCCCGGTTCTGGCTCGACAGC
                                                                                                                                                                                                                                   ACCGAACGCATACCCGCÁCCCGCACCCGCCCCCCGCCCCCCGCACCGGCACCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGACCTGCGCGCACACCGCCCACACGCCGACGGCAGCTGATGGCCGTCGCCCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1-686)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7S 6352839-A 14 05-MAR-2002;
Location/Qualifiers !
1. .2220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /mol_type="unassigned
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.56e-80
1816.00
64.03%
53.47%
50.83%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                x AR198361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (1-2220)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2220
385
76
207
52
```

429

20 129 38 38 189 58 58 249 249 309 98

849 255 729 215 789 235 138 489 158 549 178 669

202

```
S
                          멍
                                                 Ş
                                                                                밁
                                                                                                        Ş
                                                                                                                                    밁
                                                                                                                                                           Ş
                                                                                                                                                                                        밁
                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                            1882
                                                                                1822
                                                                                                                                     1762
                                                                                                                                                                                           1702
                                                                                                                                                                                                                                                                                                                                                         1522
                                                                                                                                                                                                                                                                                                                                                                                                              1462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1024
                                                                                                                                                                                                                                               1642
                                                                                                                                                                                                                                                                                                     1582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          371
                                                                                                                                                                                                                                                                        506
                                                                                                                                                                                                                                                                                                                               486
                                                                                                                                                                                                                                                                                                                                                                                    466
                                                                                                                                                                                                                                                                                                                                                                                                                                        446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        314
                                          AlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIleIle
                                                                                                                                                 | IleGlySerValHisValProArgLeuPheGluValGluThrTyrAlaProValHisGln
                                                                                                                                                                                                        ArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeuAsnSerValCysAla
                                                                                                                                                                                                                                                                                                                   LeuThrIleGlyAlaAspGlyGlyValGluSerLysBroIleLysGlyThrArgProArg
                                                                                                                                                                                                                                                                                                                                                       TACGCCGCCTACCTGCAGTTCCCCGGGGCCACCGTGCTCAGCTCCTCACCCGAACGGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCGCCTGATCACCGACGGCGAGACCTACGAGGTGTGCCTGACGAACATGCTCCGGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCGACGGCCCTTCATGTTCGCCGACCGGATGCTCGCCCTCGACCACCACCGAACAGGGGCGG 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProAspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCGCGCCCTGCCC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgArgArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrThrThrArgThrArgArgPro-----PhePheAsnTyrLeuGluGluGlnLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGAACAGATCACCTACGACCTCGCCGACCGGGCCGTGCGCGTCAAG-----GACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGly
AspArgLeuGluGlyProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeu
                                                                                                      LeuValSerThrI1eArgGlyArgLeuArgProGlyThrSerThrAlaAlaCysValArg
                                                                                                                                                                                                                                               GGCGCCGGCCCAGGACGCCGCCGTCAAGGCCTCCCTCGCCGCGGCCGAGAAGGAC
                                                                                                                                                                                                                                                                      GlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAsp
                                                                                                                                                                                                                                                                                                   CTGCGCATCGGCGGGACGGTTGGGCGGAGTCCAAACCCATCAAGGGCACCCGCCCCCGC
                                                                                                                                                                                                                                                                                                                                                                               TyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAlaSerProGluArgPhe
                                                                                                                                                                                                                                                                                                                                                                                                             CCCGGCCGGATCGACCCGCTCACCGCCTACCGCGCCTGCGCACCGTCAGCCCCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                               ProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSerProValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GTCCACTACCGCCACAGCCTGCCCCGCTACCGGGAACTGGTCGAGGAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLysArgIleAspGluCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaProAlaGluProThrProAlaMetValPheGlyIleProGluAlaAlaAlaGlyPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TrpLeuArgGluThrAlaGluThrLeuThrGlyLeuAlaValArg------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysTyrLeuLeuAlaLeuAsp-----ArgArgGlyHisAspAspGlyAlaArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCGTCAGCACGGTCCGCGGCCGCCTGGCGGCGACGTCTCCCGCGCCCCCGCGCGTACGG
                                                                                                                                    ATCGGCTCCGTCCACGTACCGGGCCTGTTCGAGGTGGAGACCTACGCCACCGTCCACCAG
                                                                                                                                                                                          CGCAGCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCGGCCAGGTCTGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TEGCTCACCGACGCCGCCCGGACCCTCGCCACCACCGCCCCCCGCCCCTTCACCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCAGGCGGCGAGACCCGGCCGGCACCCTCTTCGACCACCTGGAACACGAACTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCACCGGCCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      405
                                                                                                                                                                                          1761
                                                                                                                                                                                                                                              1701
                                                                                                                                                                                                                                                                                                   1641
                                                                                                                                                                                                                                                                                                                                                       1581
                                                                                                                                                                                                                                                                                                                                                                                                             1521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1023
 625
                          1941
                                                     605
                                                                                1881
                                                                                                                                    1821
                                                                                                                                                               565
                                                                                                                                                                                                                                                                                                                                                                                  485
                                                                                                                                                                                                                                                                                                                                                                                                                                      465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                293
                                                                                                         585
                                                                                                                                                                                                                                                                        525
                                                                                                                                                                                                                                                                                                                              505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           963
                                                                                                                                                                                                                                                                                                                                                                                                                                                PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 7
SPU60417
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                        SdC
                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2002
```

```
2122 ATGCTCCTCAAGGCGCAGACCACCCTCGCCGCCCTG---CGCCAGGCACACGCGGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomyces
Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (11-JUN-1996) Recherche Pharmaceutique, Rorer, 13 quai Jules Guesde, B. P. 14, Vitry sur
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Blanc, V., Gil, P., Bamas-Jacques, N., Bisch, D., Blanche, F., Debussche, L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97197164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Identification and analysis of genes from Streptomyces pristinaespiralis encoding enzymes involved in the biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 (bases 1 to 4740)
Blanc, V., Gil, P., Bamas-Jacques, N., L
Schleuniger, J., Bisch, D., Blanche, F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U60417.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPheThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rect Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySerAlaValAlaGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCGGCGCGGCCGACCTCAGCATCGTCATCCGCACCATCGTCGCCACCGAGGAGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeuAlaAspGlyGlnAla
|||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4-dimethylamino-L-phenylalanine precursor of pristinamycin Microbiol. 23 (2), 191-202 (1997)
        DEVREMLLKAQTTLAALRQAHAGATASDRELLAGSLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                            /organism="Streptomyces
/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:1575335
                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                               'gene="papA"
                                                                                                                                                                                                                                                                                                                                                                         'gene="papA"
function="p-aminobenzoate synthase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4740)
                                                                                                                                                                                                                                                                  table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCGTCGTCGCCCTGTCCGACCCCCGACGACGAGGTCCGCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                pristinaespiralis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lorenzon,S.,
., Debussche,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Crouzet,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lorenzon, S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and Thibaut D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ,
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Seine cedex 94403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zagorec,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rhone-Poulenc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Crouzet, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  07-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ō,
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                           S
                                                                                                                                       밁
                                                                                                                                                                          Ş
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                       ð
                                              Ś
                                                                                  밁
                    밁
                                                                                                                                                                                                                                                                               US-10-089-514-2 (1-686)
                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                                                                           Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                           Scores:
                                                                                                                                                 137
                    257
                                                                                  197
                                                  59
                                                                                                                39
                                                                                                                                                                              21
                                                                                                                                                                                                               77
                                                                                                                                                                                                                                              μ
                                                                                                                                              GCCGAGGTGAACGGCCGCCTCCGCTCGTCGTCGCAACGACGACACCCGCACCTGGCAG
                                                                                                                                                                       GlyGluAlaThrGlyGlnProProValValValProAsnAsp-----AlaAspTrpSer
                                                                                                                                                                                                                              MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                  ACCGACACCGACCTGGGCCTCAGCCGCCGGGTGATCACCGAATGGGACCTGCCGCTGCTC
                                              ArgGluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeu
                                                                                                 ArgLeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAsp
                                                                                                                                                                                                              GTGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTG
                                                                                  GCCCTGGCGCCGGCGACTTCGACAACGTCGTCTCACCCGGCCCCGGCCACCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=11
/product="PapM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /producE="PapC"
protein_id="AC44867.1"
protein_id="AC44867.1"
protein_id="AC44867.1"
/db_xref="Gd:1575337"
/db_xref="Gd:1575337"
/translation="MRGGSVFGRCVVVGAGAGAVGRMFSHWLVRSGVAVTWLDVAGAGA
/bgvrvVAGDVRRPGPEAVAALAAADVVVLAVEEVARWEAVEVLAGVWRPGAVLADTL
SVKSRIAGRLERAAPGLQAVGLIMPRAPSLGLQGREVAAVVVTDGPGVRALVELVAGW
GARVVEWPARRHDELTAAQQAATHAAVLAFGLGLGGELSVDVGALRDSAPPHILAMLAL
LARIAGGTPEVYFDIQAANFGAPAARQALGRGLVRLGQAVERGDEETFAALFAELRGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="AAC44869.1"
/db_xref="GI:157339"
/db_xref="GI:157339"
/cbanslat.ton="WTAAAPTLAQALDEATGQLTGAGITADAARAPTRLLAAHACQVA
/cranslat.ton="WTAAAPTLAQALDEATGQLTGAGITADAARAPTRLLAAHACQVA
PGDLDTCLAAGPVPRFWHYVRRRLTREPAERIVGHAYFMGHRFDLAPGVFVPKFETEE
ITRDAIARLEALVRRGTTAPLVVDLCAGEGTMAVTLAHIVPAARAVGLIELSQAAARAA
RRNARGTGARIVQGDARDAFPELSGTVDLVVTNPPYLFIGLRTSAPEVLEHDEPLALM
AGEEGLGMIRAMERTAARLLAPGGVLLLEHGSYQLASVPALFRATGRWSHASSRPTCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transT_table=11
/product="PapB"
/protein_id="AAC44868.1"
/protein_id="AAC44868.1"
/db_xref="GI:1575338"
/translation="MTPPAIPAAPPATGPAAATDPLDALRARLDAADLAALLDAVRTRL
DICLRIGEYKRLHQVPMMQPHRIAQVHANAARYAADHGIDPAFLRTLYDTIITETCRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="papM"
3799. .4677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EDEWIASGGAPVPTPVHASASARGAVS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="
3413. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (2486.
/gene="papC"
complement (2486.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             )GCLTAVRNHTCAPPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LGEHGAELERLCARMFTALH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="papM"
/function="N-methylase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="papC"
/function="dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     function="mutase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="pap8"
                                                                                                                                                                                                                                                                             ×
                                                                                                                                                                                                                                                                                                                         5.86e-80
1816.00
64.03%
53.47%
50.83%
                                                                                                                                                                                                                                                                             SPU60417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .3802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .3802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (2486. .3376)
                                                                                                                                                                                                                                                                             (1-4740)
                                                                                                                                                                                                                                                                                                                                           Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                            Indels:
                                                                                                                                                                                                                                                                                                            4740
385
76
207
52
                  316
                                                  78
                                                                                256
                                                                                                                                              196
                                                                                                                                                                              38
                                                                                                                                                                                                              136
                                                                                                                                                                                                                                              20
á
                              뮍
                                                       5
                                                                                               밁
                                                                                                                 δ
                                                                                                                                                          문
                                                                                                                                                                                   δ
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , B
                                                                                                                                                               1208
                                                                                                                                                                                                                             1148
                                                                                                                                                                                                                                                                                            1088
                                                                                                                                                                                                                                                                                                                                                         1031
                                                                                                                                                                                                                                                                                                                         314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          917
406 GlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLysArgIleAspGluCys 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              79
                                 CTGCCCGACGACCAACTGCCCGCCCTGGAC--
                                                                                                                                                                                                                                                                                                                                                          GCCCGCGCCCTGCCC---GCCACCGGCCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGC
                                                               AlaProAlaGluProThrProAlaMetValPheGlyIleProGluAlaAlaAlaGlyPhe
                                                                                                                            TrpLeuArgGluThrAlaGluThrLeuThrGlyLeuAlaValArg--
                                                                                                                                                           GCCTGGCTCCTGGCACTGAGCAGCACCCGACCGGCCACCGCCACCGCCGCCGAACGC
                                                                                                                                                                                           CysTyrLeuLeuAlaLeuAsp-----ArgArgGlyHisAspAspGlyAlaArgAla
                                                                                                                                                                                                                                            ProAspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCys
                                                                                                                                                                                                                                                                                           TyrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHis
                                                                                                                                                                                                                                                                                                                                                                          ArgArgArgVaiProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGly
                                                                                                                                                                                                                                                                                                                                                                                                                         TCAGGCGGCGAGACCCGGCCGGCACCCTCTTCGACCACCTGGAACACGAACTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrThrThrArgThrArgArgPro-----PhePheAsnTyrLeuGluGluGlnLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTGCGCGTCAAG-----GACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGGACGCCGCTTCACCGCCCTGTTCGCCGACGCCCCGGCCCGGTTCTGGCTCGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaGluGluValArgArgGlyCysLeuProĠlyGluGlyThrThrPheTrpLeuAspSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGTCCGCGCCGGTGGGGAGTÁCCGGCTGCÁTGTGCGCGAGGTCGCCTGCGTGCCCGÁC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cggargcrogccaacrrccgcgaccrgroccrgcgcgcdddddddddddddcccccccacac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluIleMetAlaAsnPheArgAspLeuAlaLeu-----AlaHisHisArg------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGACCTGCGCCACCGCCCACACCGCCGACGGGCAGCTGATGGCCGTCGCCCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyLeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCGAACCCTTTCACGGCCGACCACCAGCGACATCCGCCACGACGGGCAGGGCCTGTTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyValCysLeuGlyHisGlnGlyIleAlaĞlnLeuPheGlyGlyThrValGlyLeuAla
                                                                                               CCCGACGGCGCCTTCATGTTCGCCGACCGGATGCTCGCCCTCGACCACGAACAGGGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCCGCGTCGAGCCGGGCCCGCCTTCACCTTCGGCGCCCCGCCGGCCCGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaArgArgHisGlyAlaAspSerPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProGluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCCCGGCCGCCGCCGTCGTCCACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TyrGluLeuHisValArgArgValAspValLeuProAsp
                                                               405
                                                                                                                                                             1267
                                                                                                                                                                                             370
                                                                                                                                                                                                                                                                                           1147
                                                                                                                                                                                                                                                                                                                                                         1087
                                                                                                                                                                                                                                                                                                                                                                                                                         1030
                                                                                                                                                                                                                           1207
                                                                                                                                                                                                                                                           353
                                                                                                                                                                                                                                                                                                                           333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                118
                                                                                                                            385
                                                                                                                                                                                                                                                                                                                                                                                                                                                          293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                 RESULT 8
STMPABA
LOCUS
                                                                                                                                                  KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                  DEFINITION
ACCESSION
                                                                                                                                                                                                     VERSION
     JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                    œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1409
                                                                                                                                                                                                                                                                                                                    2129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1358
                                                                                                                                                                                                                                                                                                                                                                                                                 646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        426
                                                                                                                                            pab gene.
Streptomyces griseus
Streptomyces griseus
                                                                                                   Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales; Streptomycineae; Streptomycetaceae; Streptomyces.
1 (bases 1 to 4607)
                                                                                                                                                                                                                  STMPABA
Streptomyces griseus
M93058
                    biosynthesis
Gene 126 (1)
                                                                   Criado, L.M., Martin, J.F. and Gil, J.A. The pab gene of Streptomyces griseus,
                                                     synthase,
                                                                                                                                                                                                     M93058.1 GI:153396
      93231527
                                                                                                                                                                                                                                                                                                               ATGCTCCTCAAGGCGCAGACCACCCTCGCCCCTG---CGCCAGGCACACGCGGGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerGlyAlaAlaAspLeuSerIleVallleArgThrIleValLeuAlaAspGlyGlnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCATCGGCGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                          GluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPheThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCGGCTCGAGAAGGGCCCGCGCGCGCGTGTACTCGGGCGCGCTGGGCTACTTCGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspArgLeuGluGlyProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAlaCysValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | IleGlySerValHisValProArgLeuPheGluValGluThrTyrAlaProValHisGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeuAsnSerValCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGCGCATCGGCGGACGGTTGGGCGGAGTCCAAACCCATCAAGGGCACCCGCCCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLysGlyThrArgProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TACGCCGCCTACCTGCAGTTCCCCGGGGCCACCGTGCTCAGCTCCTCACCCGAACGGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAlaSerProGluArgPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGCCTGATCACCGACGCGAGACCTACGAGGTGTGCCTGACGAACATGCTCCGGGTG
                                                                                                                                                                                                                                                                                                                                              ThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySerAlaValAlaGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCGGCGCGGCCGACCTCAGCATCGTCATCCGCACCATCGTCGCCACCGAGGAGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGCCTTCCCCGGCGGTCGATGACCGGCGCGCCCAAGGTCCGCACCATGCAGTTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCGGCTCCGTCCACGTACCGGGCCTGTTCGAGGTGGAGACCTACGCCACCGTCCACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCAGCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCGGCCAGGTCTGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCGCCGGCCCAGGACGCCGCCGTCAAGGCCTCCCTCGCCGCGGCCGAGAAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGGCCGGATCGACCGCCTACCGCCTACCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSerProValPro
                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GTCCACTACCGCCACAGCCTGCCCCGCTACCGGGAACTGGTCGAGGAATGC
                                                     located
                     135-139 (1993)
                                                                                                                                                                                                                                                                                                                                                                               CGGCGCCGTCGCCCTGTCCGACCCCGACGACGACGAGGTCCGCGAA
                                                                                                                                                                                                                                  pab
                                                     between
                                                                                                                                                                                                                                                 4607
                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                bp DNA
le fragment.
                                                    genes
                                                  us, encoding p-aminobenzoic acid possibly involved in candicidin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCACCGTCAGCCCCCCCCC
                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                    BCT
                                                                                                                                                                                                                                                  31-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1768
                                                                                                                                                                                                                                                                                                                                                                                 2128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1408
                                                                                                                                                                                                                                                                                                                 2185
                                                                                                                                                                                                                                                                                                                                                 685
                                                                                                                                                                                                                                                                                                                                                                                                               665
                                                                                                                                                                                                                                                                                                                                                                                                                                               2068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PUBMED
COMMENT
FEATURES
                                                                                                                                                  Query
DB:
                    S
                                                  밁
                                                                               Ş
                                                                                                                  US-10-089-514-2 (1-686)
                                                                                                                                                                                  Best Local
                                                                                                                                                                                                  Percent Similarity:
                                                                                                                                                                                                                                   Pred.
                                                                                                                                                                                                                                                  Alignment
                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SdO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                  No
                                                                                                                                                                   Match:
                                                    1370 ATGCGCACCCTTCTCGTCGACAACTACGACTCGTTCACCTACAACCTCTTCCACTACCTC
                                                                                                                                                                                  Similarity:
                    21
GlyGluAlaThrGlyGlnProProValValValProAsn---AspAlaAspTrpSerArg
                                                                     MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
```

밁 Ş 밁 δ 뫄 Ś 밁 Ś 9 Ś 밁 á 밁 Ś 밁 Ş 뮍 S 밁 Ş 밁 Ś 뮍 Ś В Š 밁

x STMPABA

(1-4607)

1429

```
Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Original
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8472954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="pabab"
/codon_start=1
/codon_start=1
/transI_table=11
/transI_table=11
/product="p-aninobenzoic acid synthase"
/protein_id="AAA72111.1"
/protein_id="AAA72111.1"
/protein_id="AAA72111.1"
/protein_id="MAA72111.1"
/db xref="csi-sala263"
/translation="MRTLLVDNYDSFTYNLFHYLSRANGREPEVIRNDDPAWRPGLLD
AFDNYLSPORGTPHRPADFCLCARIAEEGRLPVLGVCLGHQGMALAHGARVGRAPEP
RHGRTSAVRHDGTGLFEGLPQPLEVVRYHSLAVTELPPELEATAWSEDGVLMALRHRT
LPLWGVQFHPESIGTQDGHRLLANFROLTERHGRTRHGRAGHGTLP PRAFALGWVGC
LGYELKAECOGDAAHRSPDDAVLVFARTGOHPFWLDSSRPGGELGQLSWMGDASGP
LARTAKADVHAGTVTVRADGASGTVESAFLTWLENDLAGLRTEVPELPFAFALGWVGC
LGYELKAECOGDAAHRSPDDAVLVFADRAVVLDHRTRTTYLLALVEDDABABARAWL
AAASATLDAVAGREPEEPCPEAPVCTTGPVELRHDRDGYLKLIDVCQQEIAAGETYEVC
LTNWABADTDLTWAAYRALRRVSPAFFAFALGHVGNUSSRPERFLRIDRHGRMES
KPIKGTRPRGATPQEDAALVRALRRVSPAFFAFLGFGPWAVLSSSPERFLRIDRHGRMES
KPIKGTRPRGATPQEDAALVRALREDSSPVAAVRAAFFDGSTGAPKIRTMQIIDRLEGGP
FQVETYATVHQLVSTVTARLREDSSPVAAVRAAFFDGSTVATAIRDBAFFEFTANKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /tissue_1
88. .1173
                                                                                                                                                                                                                                                                                                        /protein_id="AAA72112.1"
/db_xref="GI:388264"
/translation="MVPVHAHDYVTDPPSTTGRTLDGLTLPRVFADAVHRGGDAVALV
/translation="MVPVHAHDYVTDPPSTTGRTLDGLTLPRVFADAVHRGGDAVALV
DGEYALTWSAWRTAVDALARGLOESGVVSGDVVALHLPNSWEYLTLHLAAASVGAVTM
PVHQGNAPSDVRALLERVRPAAVVLTARTQBGGGPLTGPALRBVLPELBAVLVTGDAA
GEGTETVTEMLERWSGEDPLPVEVRPDSPFLLLPSSGTTSARPKICLHSHEGLLTNSR
AATEDTADAYAGTLTTACPLTHCFGLOSAYSALFRAGRQVLLSGWDVGRFLELARRER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="Mrytydseqcychaqcyclnapevedqdddcyvllradpyrsgtt

RRSARRATCARRPRSSSRTIEFAGCADRHCCPYRGGRTRGPADPPANTDRRQNHRR

DSPYTTADDTAARMLERYHPAEADAVELVCFPHAGGSASFYHPYSARRAPGAEVYSLQ

YGRQDRRKEPCYPDLGTLADLITEQLLPLDERPTYFPGHSMGAALAFETAMRLEQKG

YGRTVIASGRRGPSTTRAERTHTRDDDGIVAEMKRLMGTAAGVIGDEEILRMALPAL

RGPRTVIASGRRGPSTTRAERTHTRDDDGIVAEMKRLMGTAAGVIGDEEILRWALPAL

RGPRTVIASGRRGPSTTRAERTHTRDDDGIVAEMKRLMGTAAGVIGDEEILRVFTGGH

RGDYBAIETYTCPPDRRLACGLITYLTGEDDPLTTYEEAERWRDHTTGFFRLRVFTGGH

RGDYBAIETYTCPPDRRLACGLITYLTGEDDPLTTYEEAERWRDHTTGFFRLRVFTGGH

FFLTOHLDANTEIAQALHPDRAAPAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="pabAB"
1370. .3541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source text:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3685. .>4607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RGVYSGAIGYFSLTGAVDLSIVIRTVVLSGGRLRYGVGGAVIALSDPADEFEETAVKA
APLLRLLDTAFPGRERPGKDLDGEPDDGTDAGAPKDLVLPG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Streptomyces griseus"
/mol_type="unassigned DNA"
/db_xref="taxon:1911"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source text: Streptomyces griseus (library: IMRU3570)
Location/Qualifiers
                                                                                                                                                                                                                                                                                        PSVVVAVPASCTTWSPGCARTRTAPASARPDP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="AAA72110.1"
/db_xref="GI:388262"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="p-coumarate:CoA ligase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       codon_start=1/
transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="thioesterase-II-S-acyl"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . .4607
      1.6e-77
1766.00
63.88%
53.68%
49.43%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lib="IMRU3570"
Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   homolog"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fatty
      4607
379
72
211
44
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    synthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    homolog"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
```

:

354 CyeTyrLeuLeuAlaLeuAspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArg 373	34 29	314 TyrleuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHis 333	2312 GGGCTGCGCACCGAGGTGCCCGAACTTCCCTTCGCGTTCGCGCTCGGCTGGGTCGGC 2368	274	254 ProLeuAlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySer 273	σ,		219 ValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeu 233	201 SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGlu 218			180 ILEMETALBARDPHEATGARDLEUALBLEUALBHIBATGALBATGATG 196 1910 CTGCTGGCCAACTTCCGCGACCTCACCGAGCGCCAACCGCCGAACCGCCCACGCCGGCCG	CTGCCGCTGTGGGGAGTGCAGTTCCACCCCGAGTCGATCGGCACCCAGGACGGCCACCGG	160 LysProLeuTrpGlyValGlnPheHisProGluSerTleGlySerAspPheGlyArgGlu	1790 GAGCTGGAGGCCACGCCTGGTCGGAGGACGGGGTCCTGATGGCGCTGCGCCACCGCACG 1849		120 LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAsp 139	1670 GAGCCCCGTCACGGCCGCACCTCGGCCGTACGGCACGGC	00 GluProMetHisGlv&rdValSerGluValserGluCluBerValserValserCluCluBerValserCluCluBerValserCluCluBerValserCluCluBer	80 ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro 99	ccaccaActrcaccraracacccaaarcaccaaaaaaaccaactaccaatactaacc		_	TCCCGGGCCAACGGCCGGGAACCCGAACGACCAACGACGAC
ACCESSION VERSION KEYWORDS	RESULT 9 SGR300302 LOCUS DEFINITION	Db 34	LJ.	Qу 6 Db 33	<i>t</i> .)	Db 31	Db 31 Qy 5	Ογ 5	Db 30	1.3	Qy 5	N		ДУ ДЪ 28		Qy 4	Db 27		07	Db 26		0у з	Db 25	γQ

ω _	33 6	ω _	ų.	ω	ω	ω	ω	N	N.	N	N	N.	N	N	N
673 422	653 362	633 302	613 3242	593 182	573 3122	553 062	533 1002	513 2942	493 882	473 822	453 762	433 702	413 642	394	374 549
MetValThrAlaLeuAep 678 ::::: CTGCTGCGTCTCCTCGAC 3439	IleValSerLeuSerAepGlnGluGluGluPheThrGluThrValValLyBAlaArgAla 672 ::::::: GTCATCGCGCTCTCCGACCCGGCCGACGAGTTCGAGGAGACGGCGGTCAAGGCCGCCCCG 3421	IleValIleArgThrIleValLeuAlaAspĠlyGlnAlaGluPheGlyValGlyGlyAla 652 ATCGTGATCCGCACGGTGGTGCTCAGCGGCGGCAGGCTGCGCTACGGCGTCGGCGGCGCC 3361	ArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSer 632	MetThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyPro 612	ArgLeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySer 592	ArgLeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGly 572 ::: :::	ValAspLeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValPro 552	GluArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIle 532	GlyValGluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAsp 512 :::	ProGluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGly 492 ::::::	ProLeuTyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPhe 472	GluSerTyrGluIleCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeu 452 ::: :::	HisaspLysaspAlaTyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsnGly 432	MetValPheGlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArg 412	GluThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAla 393 :::

Вþ

밁

8

8 & 8

B Ś 망 ઇ 음 성 밁 ફ 밁 ₽ ફ

ঠ

밁 र् 밁 ş 음 성

음 성

ঠ

음 성 음

망

밁

S B ঠ 밁

ঠ

SGR300302

39314 bp DNA linear BCT 20-MAR-2002 Streptomyces griseus partial ORF1, canA gene, canC gene, canF gene, canF gene, canRa gene and canRB gene.
AJ300302

AJ300302.1 GI:12231153

ABC-transporter; aminotransferase; can RB gene; canA gene; canC

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (14-NOV-2000) Gil J.A., Mic
Leon, Campus de Vegazana s/n, 24071,
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene; canf gene; canRA gene; canT gene; Cho-like protein; cytochrome P-450; ferredoxine; PABA synthase; thioesterase. Streptomyces griseus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The candicidin gene cluster from Streptomyces griseus IMRU 3570 Microbiology (Reading, Engl.) 148 (Pt 1), 51-59 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomyces griseus
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gil, J.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Campelo, A.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21642576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Campelo, A.B. and Gil, J.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Leon,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11782498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 39314)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="Cho-like protein"
/product="Cho-like protein"
/product="Cho-like protein"
/product="Cho-like protein"
/product="Cho-like protein"
/product="Cho-like protein"
/db_xref="G1:12231154"
/db_xref="G1:12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Spain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (2000) Department of Microbiologia, Universidad de Leon,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9525. .10583
/gene="canA"
9525. .10583
                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="aminotransferase"
/product="aminotransferase"
/protein_id="CAC22113.1"
/db_xref="GG1:12231155"
/db_xref="GG1:12231155"
/db_xref="GG1:12231155"
/db_xref="GO1:12231155"
/db_xref="GOA:Q9EWC5"
                                                                                                                                                                                                                                                                                                                                                                            10678
                                                                                                                                                                                                                                                                                                                                                                                                                             AADQEYITGAVRDFYRAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEVVRLAGRVLDREPATSARIHSTLPLAI"
/product="cytochrome P-450"
/protein_id="CAC22114.1"
                                                                                                       /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transI_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="canA"
/codon_start
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Streptomyces griseus"
                                                                                                                                                                                                              gene="canC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        strain="IMRU 3570"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . .39314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       xref="taxon:1911"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               start=1
                                                                                                                                                                                                                                                                          .11859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Microbiologia, Universidad de
71, SPAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sg
                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
```

```
/codon_start=1
/transI_table=11
/product="thloesterase"
/protein_id="CAC22116:1"
/db_xref="GOA:Q9EWC2"
/db_xref="GOA:Q9EWC2"
/db_xref="GOA:Q9EWC2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl tah'
                           AFDNVVLS PGPGTPHR PADFGLCAR I AEEGRL PVLGVCLGHQGMALAHGAR VGRAPEP
HIGRTSAVRHDCTGLEBGLPQPLEVVREYSLAVTELEPBELEATMASEDGVLMALRHRT
LPLMGVQFHPESI GTQDGHRLLANFRDL TERHGRTRHGGRAGHGTLPEP APABETKAT
TGTPRRLRVI LAKSLPTRWDAEVAFBL FRTBDLFFWLDSSR PGGELGQLSMMGDASGF
LARTAKADVHAGTVTVBADGASSTVESAFLTWLENDLAGLRTEVPELPFAFALGWVGC
LGYELKAECODDAAHRSPD PDAVLVFADRALVLDHRTRTYLLALVEDDAEABARAML
AAASTLLDAVAGREBEFCFEAFVCTTGPVELRHDRDGVLKLI DVCQQELAAGETYEVC
LTMMABADTDLTPMAXVRALREVSPAPFAFLDFGPMAVVRBDLGREFLRI DRHGRMGS
KPIKGTRPRGATPQEDAALVRALATCEKDFAFALDFVCRDSPMAVTBDLGRCAEVGSVVADPV
FQVETYATVHQLVSTVTMALREDSGFVAAVRAAFPGGSMTGAPKIRTMQI I DRLEGGP
FGVYSGAI GYFSLTGAVDLSI VIRTVVLSGGBLRYGVGGAVI ALSDPADEFEETAVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MTTSPGPTVVDFPRRTPREPLPLSQYAEHRKQNGLVQTHLPNGR
PIMLTRHEDVRAVLTHPRISANDDNEGFPNVGETWGVDKQEQIPGWFVGLDSPEHDR
FRKVLIPETVRRVRILVAIRTSTDEERAEATRQLLKYINRLIVIKKWRGEDLISRL
GVPSADRDFFESRTRTLVAIRTSTDEERAEATRQLLKYINRLIVIKKWRGEDLISRL
GVPSADRDFFESRTRTLVAIRTSTDEERAEATRQLLKYINRLIVIKKWRGEDLISRL
LSTGKLSDEELGVLLLLLIAGHETTANNIGLGVVTLLSHEWIGDDRLVEELLRLHS
VADMVALRVAVDDVEIAGQTIRKGEGIVPLLASANHDTEAFGCPHAFNPERTERRHVA
                                                                                                                                                                                                                                                                                                                                                                                                /transT_table=11
/product="PABA synthase"
/protein id="CAC22117.1"
/db_xref="G1:1231159"
/db_xref="GOA:Q9EWC1"
/db_xref="UniProt/TrEMBL:Q9EWC1"
/translation="WRTILLUNYD65FYNLFHYLSRANGREPEVIRNDDPAWRPGLLD
/translation="WRTILLUNYD65FYNLFHYLSRANGREPEVIRNDDPAWRPGLLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MTTADDTAARWLRRYHPAEADAVRLVCFPHAGGSASFYHPVSAR FAPGAEVVSLQYEGRODRKESPCVDLGTLADLITEQLLFLDERFUFFGHSMGAALA FETAMRLEQKGAGPRTVLASGRRGPSTTRAERVHTRDDDGIVAEMKRLNGTAAGVLGD EEILEMALPALRGDYRAIETYFCPPDRRLACGLTVLTGEDDPLTTVEBAERWRDHTTG EFRLEVFTGGHFFLTQHLDAVNTEIAQALHPDRAAPAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="pabAB"
/codon_start=:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="pabAB"
13190. .15361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EAVRTAGDLCPSASVVLQED"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="GOA:Q9EWC3"
/db_xref="UniProt/TrEMBL:Q9EWC3"
/translation="MRVTVDSEQCVGAGQCVLNAPEVFDQDDDGVVVLLRAEPDERDH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/product="ferredoxine"
/protein_id="CAC22115.1"
/db_xref="GI:12231157"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FGYGVHQCLGQNLVRVEMEIAYRKLFERIPELRLAVPEDQLAYKYDGILFGLHELPVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="GOA:Q9EWC4"
/db_xref="UniProt/TrEMBL:Q9EWC4"
APLLRLLDTAFPGREAPGKDLDGEPDDGTDAGAPKDLVLPG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13190. .15361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="canT"
12223. .12993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12223. .12993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="canf"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11906. .12100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="canT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="canF"
```

/gene="canRA" /codon_start=1 /transT_table=11 /product="ABC-transporter" /protein_id="CAC72118.1" /db_xref="GI:12231160"

_xref="GOA:Q9EWC0"

/gene="canRA" 20829. .21836

```
ঠ
                                                                                                                                                                                                                                                                                                                                                                                                          ð
     S
                               밁
                                                                   S
                                                                                                       밁
                                                                                                                                                                   밁
                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                      ર્
                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-2 (1-686) x SGR300302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Мо
:
                                                                                                                                                                                                                                               13490
                                                                                                                                          140
       180
                                                                                                                                                                                                                                                                                                                                                 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArg------
                                                                                                                                     GluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGlu
                                                                                                                                                                                            LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAsp
                                                                                                                                                                                                                                                                                                                                          ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                     GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCCGGGCCAACGGCCGGGAACCCGAGGTCATCCGCAACGACGACCCGGCCTGGCGGCCG 13309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyGluAlaThrGlyGlnProProValValValProAsn---AspAlaAspTrpSerArg
                                     CTGCCGCTGTGGGGAGTGCAGTTCCACCCCGAGTCGATCGGCACCCAGGACGGCCACCGG
                                                          LysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGlu
                                                                                                       GAGCTGGAGGCCACCGCCTGGTCGGAGGACGGGTCCTGATGGCGCTGCGCCACCGCACG
                                                                                                                                                                                                                                            GAGCCCCGTCACGCCACCTCGGCGGTACGGCACGACGGCACCGGGCTCTTCGAGGG
                                                                                                                                                                                                                                                                            GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly
                                                                                                                                                                                                                                                                                                                                                                               CCGGCCGACTTCGGCCTGTGCGCCCGGATCGCCGAGGAGGGCCGGCTGCCGGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTCTGCTCGACGCGTTCGACAACGTGGTGCTCTCCCCGGGGCCGGGCACCCCGCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="cankB"
/codon_start=1
/codon_start=1
/transT_table=11
/transT_table=11
/product="ABC-transporter"
/protein_id="CAC22119.1"
/db_xref="G1:12231161"
/db_xref="G1:12231161"
/db_xref="Uniprot/TrEMBL:Q9EWB9"
/db_xref="Uniprot/TrEMBL:Q9EWB9"
/translation="WRPPAAVPAFGGSSLFTQIRVLTGRSLRAMVTDPGIVLFGLIQP
VVILFVLTQVFSKMGMPPHFPDGVSYLDYVLPAVLVDNAAQSAMQSGVGLVEDQKMGI
VABLRSLEVUHPGALLAARSLVGLVRSAVQVAVIMALAMTVLGYSPNGGAAELALSAGL
TLFISFSLGWAFIAAGAWLRRAEPLQNLALIVIFPLMFASSAYVPVADLPSWLGAVAS
VNPLTYAIDATRALALDVPGLDHAIPAVVICAVIAVVGMIAAVRGFRRPL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MNGLHLPPAPLPAPGVSAAGSGDLMIEAEGVSKAYGTVHALDSV
SLAVPRGTVLGLLGHNGAGKTTLVDILTTALPPTSGRARVAGKVDVADKPVEIRRRIGL
TGQFASVDAQLSGYDNLVLIARLLGAGRRAARVARFELLFRLTEVADRRASSYSGG
LRRRLDLAVSLVGAPEVLFLDEPTTGLDPSSR.INLWBIVEGLVEQGTTYLLTTTQYLEE
ADRLADRIAVLSAGRVVAAGTAPELKATVGRRTVTLTLETGEDVSAARTALRGAGFAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="canRB"
21970. .22776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VDGEARTVVVPIDATREIADIIRSLDQAGVEASELNFGEPTLDDVYLTLAEQAAGRTF
                                                                                                                                                                                                                                                                                                               GGGCCACCAGGGCATGGCCCTCGCCCACGGCGCCCGGGTGGGCCCGGGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.66e-76
1766.00
63.88%
53.68%
49.43%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _xref="UniProt/TrEMBL:Q9EWC0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (1-39314)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                          ĊĠĊĠĠŦĠĂĊĠĠĂĀĊŤĠĊĊĠĊĊĠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39314
379
72
72
211
44
     196
                                     13729
                                                                                                                                                                          13609
                                                                                                                                                                                                                                                                                                               13489
                                                                                                                                                                                                                                                                                                                                                                                 13429
                                                                                                                                                                                                                                                                                                                                                                                                                                                   13369
                 Ś
                                                   밁
                                                                                 S
                                                                                                                                              S
                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                            뫄
                                                                                                                                                                                        밁
                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                            14522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14369
                                                                                                                                                                                                                                                                                                                               14462
                                                                                                                                                                                                                                                                                                                                                                                                   14420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13730
                                                                                                                       14642
                                                                                                                                                                                                                                                                                            433
                                                                                                                                                                                                                                                                                                                                                             413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             201
GluargLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIle
                                                                     GGTCCCATGGCCGTGCTCAGCAGCTCTCCGGAGCGGTTCCTGCGCATCGACCGGCACGGG
                                                                                                                                                      ProGluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGly
                                                                                                                                                                                        GCGGCCTACCGCGCGCGCGCGGGTGAGCCCCCCCGTTCGCCGCGTTCCTGGACTTC
                                                                                                                                                                                                              ProLeuTyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPhe
                                                                                                                                                                                                                                                            GAGACCTACGAGGTCTGCCTGACCAACATGGCCGAGGCGGACACCGACCTCACCCCGTGG
                                                                                                                                                                                                                                                                              GluSerTyrGluIleCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeu
                                                                                                                                                                                                                                                                                                                               CACGACCGGGACGGCTACCTGAAGCTGATCGACGTCTGCCAGCAGGAGATAGCCGCCGGG
                                                                                                                                                                                                                                                                                                                                                   HisAspLysAspAlaTyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsnGly
                                                                                                                                                                                                                                                                                                                                                                                                                          MetValPheGlyIleProGluAla---AlaAlaGlyPheGlyProLeuAlaArgAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGGCCTCCGCCACCCTGGACGCCGTCGCCGGGCGG-----GAGCCCGAGCCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GluThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CysTyrLeuLeuAlaLeuAspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProAspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCCTGGGCTACGAGTTGAAGGCCGAGTGCGACGGCGACGCCGCACCGCCCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGCTGCGCACCGAGGTG----CCCGAACTTCCCTTCGCGTTCGCGCTCGGCTGGGTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgArgArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspGlyThrThrThrArgThrArgArgProphePheAsnTyrLeuGluGluGlnLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCCTCGCCCGGACCGCCAAGGCCGACGTGCACGCCGGAACCGTCACGGTGAGA---GCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProLeuAlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGACGCCGTGCTGGTCTTCGCCGACCGGGCCCTGGTGCTGGACCACCACCCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspSerSerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCTTCGACTCGCTGTTCCGCACCGGCGACCACCCC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Val-----ArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCCCACGGCGGCTCCGGGTCATCGCAAAGTCGCTGCCCACGCGCTGGGACGCCGAGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerProTyrGluLeuHisVal-----ArgArgValAspValLeuProAspAlaGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGGACACGCTCCCGCCCCCCGCGCCCGGGAGACGAAGGCCACCACCGGC
                                                                                                                                                                                                                                                                                                                                                                                               CCCGAGGCGCCCGTGTGCACGACGGGTCCGGTG---GAGCTGCGC
                     532
                                                     14761
                                                                                                                       14701
                                                                                                                                                                                                                                                                                                                                                                                               14461
                                                                                     512
                                                                                                                                                        492
                                                                                                                                                                                                                                                                                                                                                               432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218
                                                                                                                                                                                          14641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13849
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
AY310323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                   PUBMED
                                                                                            gene
                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces sp. FR-008 heptaene macrolide cluster, complete sequence.
AY310323
                                                                                                                                                                                      Direct Submission
Submitted (30-MAY-2003) Bio-X Life Science Research Center,
Shanghai Jiaotong University, 1954 Huashan Road, Shanghai
                                                                                                                                                                                                                                                                                                                               Organizational and Mutational Analysis of a Complete FR-008/Candicidin Gene Cluster Encoding a Structurally Related Polyene Complex
                                                                                                                                                                                                                                                                                                                                                                                              Chen,
                                                                                                                                                                                                                                                                                                                                                                                                           Streptomyces sp. FR-008
Bacteria; Actinobacteria; Actinobacteria; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.

1 (bases 1 to 138203)
                                                                                                                                                                                                                                                               2 (bases 1 to 138203)
Chen, S., Huang, X., Zhou
                                                                                                                                                                                                                                                      Deng,
                                                                                                                                                                                                                                                                                                                                                                               Deng
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptomyces sp. FR-008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AY310323.1
                                                                                                                                                                                                                                                                                                   .4652074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MetThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGCTGCGTCTCCTCGAC 15259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MetValThrAlaLeuAsp 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IleValIleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCGGTGTCTACTCGGGCATCGGCTACTTCTCCCCTCACCGGCGCGGGTAGACCTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGACCGGGGCGCCGAAGATCCACCATGCAGATCATCGACCGGCTGGAAGGCGGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgLeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGly 572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCATCGCGCTCTCCGACCCGGCCGACGAGTTCGAGGAGACGGCCGGTCAAGGCCGCCCCG 15241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCGTGATCCGCACGGTGGTGCTCAGCGGCGGCAGGCTGCGCTACGGCGTCGGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCTGCGCGAGGACAGCAGCCCGGTGGCGGCGGTCCGGGCGGCCTTCCCCGGCGGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgLeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCGACCTGGTCCGCCACGACCTGGGGCGGTGCGCCGAGGTCGGCTCGGTCGTCGCCGAC 14881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValAspLeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCGCTCGTACGTGCCCTGGCCACCTGCGAGAAGGACCGCGCGAGAACCTGATGATC 14821
                                                                                                                                                                                                                                                                                                                                                                                          S., Huang, X., Zhou, X., Bai, L., He, J., Jeong, K.J.,
                                                                                                                                                                                                                                                                                                                Biol. 10 (11), 1065-1076 (2003)
                                                             complement (574. .1950)
                                                                                                              8
transl_table=11/
                                                                                                                           /organism="Streptomyces sp.
/mol_type="genomic DNA"
                                                                                                                                                                      Location/Qualifiers
                                                                             gene="fsc0"
                 codon_start=1
                              note="putative FAD-dependent monooxygenase"
                                                'gene="fsc0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:34766435
                                                                                                          xref="taxon:206662"
                                                                                            lement (574. .1950)
                                                                                                                                                                                                                                                               Zhou, X., He, J., Bai, L.,
                                                                                                                                                                                                                                                                 Jeong, K.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    synthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCT 06-DEC-2003
                                                                                                                                                                                                                                                                    Lee,
                                                                                                                                                                                                                                                                                                                                                                                            Lee, S.Y.
                                                                                                                                                                                                        200030
                                                                                                                                                                                                                                                                    , S. Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15001
                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                             SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                SdC
```

```
/product="FEGRII"
/protein id="AAQ82552.1"
/db_xref="GI:34766439"
/db_xref="GI:34766439"
/db_xref="GI:34766439"
/translation="milerttelavragepspedardryrolarsaliorly translation="milerttelavragepspedardryrolarsarhyrolaration="milerttelavragepspedardryrolarsarhyrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelavragepspedardryrolaration="milertelav
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="mdpapaadpagsperaavladgfdragayvacldpsltiqovno
Eperreggsselcgsrecivhpsvqoplmhgramldgkrheridviavdgerta
stlplmalavbggrtpbynaallvymnaaeebagdabvkaperkkilseldparliegias
gvstiplasgrylsrogveyhvtgllrklkvpnraalvsraysmgvlkvgtwppkvve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="AAQ82550.1"
/db_xref="GI:34766437"
/db_xref="GI:34766437"
/tamelation="MIEDGERAPEALASLALTNYGHFTTLLVENGRVRGLDLHLER
/txamelation="MIEDGERAPEDGRATVENTVEDPALNIGNIAADARPGILV
IRDCRTLFDAALDPDRVRKLARRAAPTDGRATVENTVEDPALNIGNIAADARPGILV
TSRPAPDKPPGTLRVRSVVHRRDLPEVKSVGLCFTLRRGAQRAGXAGYDDVLFTGFDGD
ILEGGTMNVGLVRDGEVVMPGGEVLAGTTRQLLRRGHRRSHRTGRPRGPRLSRGGLRD
QRRVGVRPVTGIDDREFPAAHHSVTRLAEIYQALPGSPL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="fscRII"
complement(4377. .7205)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (3150.
/gene="fscRI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (3150. .3818)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (2264. .3037)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (2264.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YTAPPRIDGLHPDLRTPTSLPPGRLNAELTEHLRALVAEHFPPFWAAKLLSTPAETTF
IQPIYDLDVPHYATDRMVLIGDAASVARPHLGAGSVKALQDATALEAAWVAGESWKEI
HAYRRLGISGRRELIVLFSRAEYAGTGD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (4377. .7205)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="AAQ82551.1"
/db_xref="GI:34766438"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="fscRI"
/note="putative transcriptional activator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transI_table=11
/product="PabC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LEGYHAARGPVGTAMVGLARRMGSAQVEETPDWSAMGQAEFDAWWQEQNNGSDRRSGF
                                          AERAARGAGHRSGPPATPEDVLTPTERRVVGLACRGLTNQEI AGALGVSSRAVEKHLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="fscRII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="FscRI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="pabC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="pabC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="putative transcriptional regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="putative 4-amino-4-deoxychorismate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .3818)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .3037)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lyase"
```

/gene="fscRIII"

```
/translation="mwilwagdrsgaapgrsgaapgrsgaapgrsparespyphrsravp
pappingraholdvlarhadaargrrelvllogpagioktrallraalabdgelagmt
TLYGSCRAVDVATGYSGVRALFGGLGLIGEKGRTSPLLVGGARRALPALAADDGELDA
DPGSTFSVLGGLYWLAANLMADGPLUNLDVLWCDERRELRWLDE-LIRRADGLELDA
DPGSTFSVLGGLYWLAANLMADGPLUNLDVLWCDERRELRWLDE-LIRRADGLELLVV
AAHRTGTGLTAPDALADLVAHHLPASLGLGFDTGTARLAAGGKVVAASVRGVULBEOPDAVRQ
LRAVAVALGDEBGTYLLAALGRAVGVHYBEBAVELLAAGGKVVAASVRGVULBEOPDAVRQ
VARAVAVLGDEBGTYLLALGRVSVYHYBEBAVELLAPGDDWAVSVLRDAAQABGRG
ACEAAARYLERVREAREKDEVDVLSRLGKALAFTDPARSVLLHERHSLTTDVRAAQAT
AVQASGVAVLRRRAARLLSDVGRSPEEIATQLLLVPGTPDDWAVSVLLHERHSLTTDVRAAQAT
AVQASGVAVLERRREABFKDPDVLSRLGKALAFTDPARSVTLLHERHSLTTDVRAAQAT
AVQLGIJTCLAVQOSPDGARALTEALDALDAELGFBEPADRELRTLTESALLIVGSDE
KATLPDILRTTGLTPOPGDTPAQRQQLAMLSVLSAAEGGGAEETVGRARAALDAIKREHLD
RFVWSYHMYLWARGRRALABGEVLETVLRGSGDTAAVWTYVLALSTRSLFRLENG
AVPDAMADAGTALEILGQERWGDTATWHTAXASVLTERGDFGRALEALDAIKREHLD
RFVWSYHMYLWARGRRALAADGDLDGALQVFGSCGASMAEAGLTVAVADFWLETTACLL
GEAGRGEEAGRAAAHGTRLAERWGTRRALGYAALARGAAARGTARTGALREAVALLAD
SPARSGHARGLLLLGRALVEDGAVREGREHLERSVGLARRAGGTARTGALREAVALLAD
SPARSGHARGLLLLGRALVEDGAVREGREHLERSVGLARRAGGTARTGALREAVALLAAG
SPARSGHARGLLLLGRALVEDGAVREGREHLERSVGLARGGTARTGALREAVALLAAG
SPARSGHARGLLLLGRALVEDGAVREGREHLERSVGLARRAGGTARTGALREAVALLAG
SPARSGHARGLLLLGRALVEDGAVREGREHLERSVGLARRAGGTARTGALREAVALLAG
SPARSGHARGLLLGRALVEDGAVREGREHLERSVGLARRAGGTARTGALREAVALLAG
SPARSGHARGLLLGRAGGTARTGALGTATGALGTATGALGTATGALGTATGALGTATGALGTATGALGTATGALGTATGALGTATGALGTATGALGTATGALGTATGALGTATGALGTATG
                                                                                             /protein_id="AAQ82555.1"
/db_xref="G1:34766442"
/db_xref="G1:34766442"
/db_xref="G1:34766442"
/translation="MDSAARPILEVSLPESGLLNPLLVLAGELARRGVPDLWFATDEH
RREEVEALSUVSKVSFASLGEVVPELSAVTWIDEVYREVTQSSRFKAHRAVVRQSYRP
ALQARKYRELEQVVDEVRPALMVVDCVAGFGVDLALARGIPYVLNVPFVASNVLTSHN
PFGASYTPKSFFVPNSGLPARMSVRQKLAUTLFKWFILGMFLHEDMAALLREDAAIRK
ELGIAPPNAMTRVDEAAAVVCSSVABELDYPFDIPDRVSLVGAVLPFLPEAFDDDEVTR
WLDAQSSVVYMGFGTITRLTREEVAALVESVARRMSGTHQFLWKLPKEQOHLLEBAGSIP
PDNLKVESWVPSQLDVLAHPNVSVFFSHGGGNAYHEGYYFGKPQVVRPLWVDCFDQAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RRDLAVAYLARALDEPLAÄEDRAR I ÉPQLAS VEMVTAPTAAERRLGGLI RATREGÉGA
GLARARTDLCLLGGDTRAARHALAGALDSAPAAPEPRRGFGARA VPPERAEPRATPRT
HLVPHRPYAGTPPGATGPDGRRSAAPDLPGTPAHDAPRS PGPERAGRPDTAGPDEDP
AVAEHHELTVLCRVASFLRHDDADLDVLPVPALPDAVINPAVACVWAWEHGVACVHRE
EVRRLARSAF VPPAATGRPLLVVPRLLGCRALLLTDDGDEAENHLGALLDESHRERAAI
SVAHILITVRAELHIRHGRPDAAARDLAAAQAELFLDRLHPLFLYWLALSMITDLQNG
HTERARETAARPLPPLAHESATTAQLLFARGVLARTDDEPHQAREHFRACGRWLLRHG
GLANPAVQPWRSLAAEAAHTLGDTEEAARLVHEEVRLARRWGAAAPLGRAACHLERHG
CANPAVQPWRSLAAEAAHTLGDTEEAARLVHEEVRLARRWGAAAPLGRAACHLEVVTE
ENRVENLRAAVTTLSAASARTAYTRAVIELAAAEREENERTAVALGPAATVLPPVAP
PPGPHYVSAVARPEGPRAVLTGRRTAKAPGHDAAVWHGLTAVERETAALAAQGLGNR
ETATELAVTRA VET LSAASARTAYTRAVIELAAAEREENERTAVALGPAATVLPPVAP
PPGPHYVSAVARPEGPRAVLTGRRTAKAPGHDAAVWHGLTAVERETAALAAQGLGNR
ETATELAVTRA VET LSAASARTAYTRAVIELGEBARTAVALGPAATVLPPVAP
RGRDFGISLTLDKPHTVDPDDVVDKLTRVTSDPAFRTEAERLGALQRAAGGRAAAADI
VTGLLPAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GRMREVTASPLDMLTGTERTVAGLVASGAGNREVAESLFVTVRTVELHLTSVYRKLGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (10298. .13315)
/gene="fscRIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ETATELAVTTRAVELRLSGVYRKLRIRGREELRALVQEAEGS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTALTRPEWSVGTPLTGLATTIELALPPLTSGGTATAVLRAFGAPGDPAPTEALAEAT
RGIPAVVHDVLDRFARAGYSPRADRIDPLRALTAEVVGDHATRALSDLRDPAAVDALR
RGIPAVVHDVLDRFARAGYSPRADRIDPLRALTAEVVGDHATRALSDLRDPAAVDALR
ALAVCGDLLDFPLVCTLAGPHSVSESRLRAALAASGLTTLRDGHPRVQDAVVRARVLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MYDLHMPPIELPLLERDRELAALSAVIGELGSGRPAVVTVTGEP
GLGQNDLLRWAAAYATDAGLRVLSAHATPAEHEVRYGVVAQLLAEENRALAPRLFLTD
EQPGGLPGLNGLLNAVRDRPTLLVVRDTQWLDPASLRWLEALARRLPRAPVALLTSTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="glycosyltransferase responsible for mycosamine
attachment"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="fscMI"
13522. .14898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13522. .14898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ARRGDLTEALREAGATAR PAAERR PGHAKRRNP "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="F8CRIV"
/protein_id="AAQ82554.1"
/db_xref="GI:34766441"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (10298. .13315)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMPAADRAELYARAAGLAQRVAADDQGIADLLLLARPVGDPWAVDTLRRGFTSALRGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
/product="FscMI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="fscMI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="FscRIII"
/protein_id="AAQ82553.1"
/db_xref="GI:34766440"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     trans1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="fscRIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="putative transcriptional regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="putative transcriptional regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _table=11
```

gene

CDS

gene

Sg

gene

δ

201 SerProTyrGluLeuHisValArgArgValAspValLeuPro-----AspAlaGlu 217

```
片
                               Ś
                                                                       밁
                                                                                                   Ş
                                                                                                                                            밁
                                                                                                                                                                            Ś
                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                      뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
DB:
                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-2 (1-686)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Saco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.:
                                                                                                                                                                                                                                                                                         18970
                                                                                                                                            19090
                                                                                                                                                                                                                19030 GAGCTGGAGGCCACCGCCTGGTCGGAGGACGGGGTCCTGATGGCGCTGCGCCACCGCACG 19089
                                                                                                                                                                                                                                                                                                                                                               18850 GTCTGCCTGGGCCACCAGGGCATGGCCCTCGCCCACGGCGCCCGGGTGGGCCCGGGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18790 CCGGCCGACTTCGGCCTGTGCGCCCGGATCGCCGAGGAGGGCCCGGCTGCCGGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18670 TCCCGGGCCAACGGCCGGGAACCCGAGGTCATCCGCAACGACGACCCCGGCCTGGCGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18610
                                                                                                       180 IleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArg------ 195
                                                                                                                                                                                                                                   140 GluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGlu 159
                                                                                                                                                                                                                                                                                                            120 LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAsp
                                                                                                                                                                                                                                                                                                                                                                                   100 GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                            80 ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40 LeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21 GlyGluAlaThrGlyGlnProProValValValProAsn---AspAlaAspTrpSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     μ.
                                                                                                                                                               LysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGlu 179
MetArgThrLeuLeu1leAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                   ---ArgHisGly----
                                                                   CTGCTGGCCAACTTCCGCGACCTCACCGAGCGCCACGGCCGAACGCCCGGGCCGGGCCGG 1920
                                                                                                                                         CTGCCGCAGCCGCTGGAGGTGCTGCTGCTACCACTCCCTCGCGGTGACGGAACTGCCGCCG 19029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluArgAspPheGlyIleSerArgArgAlafleThrAspSerGlyLeuProValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTCTGCTCGACGCGTTCGACAACGTGGTGCTCTCCCCGGGGCCGGGTACCCCACACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="mafthpysrpaldgreleyysdaysggmissogpyvrrfeeafa
Emngyahgyacssgtaaltilalralmigpgdevivdeptmvasamaytytgaydyfvd
Cgddluidvtrieekitpettrakwaphyvygrrcdmdaymalaldynlavedbarebahg
Vrpygdiacteakitpakiitagegycltdddrlaeglahlramaftransfilkklay
Vrpygdiacteakiitageilatiatreiearydaglkdlpgitlmpagdylmyydlr
Nyrmtamogavalacterldeilatreiearydaglkdlpgitlmpagdylmyydlr
Aerreelrahildargietrlffkpmsropgyldpvmptlnahrfsedglylpthtglt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AADQEYITGAVRDFYRAG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="FscMII"
/protein_id="AAQ82556.1"
/db_xref="GI:34766443"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mycosamine biosynthesis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="putative aminotransferase responsible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="fscMII"
14953. .16011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene="fscMII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.52e-76
1766.00
63.93%
53.89%
49.43%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     x AY310323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-138203)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     138203
381
71
209
46
13
                                 ----- AlaAsp 200
                                                                                                                                                                                                                                                                                                                                                               18969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                      18909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18669
```

ν σ	Υ	8 4	8 4	8 4	8 4	ъ ч	8 4	8 4	8 4	8 4	ρ <	₽ ≺	8 4	8 4	8 4	σ <	8 4	σ
ccaccaccreacecegecegrececeaegrececr		512 AspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMet 531 	492 GlyGlyValGluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGlu 511	472 PheProGluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAsp 491	452 LeuProLeuTyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGlu 471	432 GlyGluSerTyrGluIleCysLeuThrAsnMetValThrAlaProThrGluAlaThrAla 451	412 ArgHisAspLysAspAlaTyrLeuLysArgTleAspGluCysLeuLysGluIleArgAsn 431	393 AlaMetValPheGlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAla 411 19837 TGCCCCGAGGCGCCCCGTGTGCACGACGGTCCGGTGGAGCTG 19878	373 ArgGluThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrPro 392 :::	353 CysCysTyrLeuLeuAlaLeuAspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeu 372 	333 HisProAspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGly 352 ::: ::: ::: 19666 GATCCCGACCCGTGCTGGTCTTCGCCGACCCGGCCCTGGTGCTGGACCACCCGCACCCGC 19725	313 GlyTyrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerPro 332 	293 GluArgArgValProValAlaBroGluLeuProPheGluPheAsnLeuGlyTyrVal 312	273 SerAspGlyThrThrThrArgThrArgArgProPhePheAsnTyrLeuGluGluGlnLeu 292 ::: ::::::	253 GlyProLeuAlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGly 272	233 LeuAspSerSerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArg 252	218 GluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrp 232	
38 3800001 391 39 3900001 401 40 4000001 411 41 4100001 421	3 35 3500001 363 3 36 3600001 373 3 37 3700001 383	3 3200001 331 3 3 3300001 341 3 3 3400001 351	2700001 28 2800001 3 29 2900001 3 30 3000001	24 2400001 251 25 2500001 261 26 2600001 271	2000001 211 21 2100001 221 22 2200001 231 22 2200001 231	16 1600001 17 1700001	1200001	1000001	00001 00001	700 Degin	it into 61 fragment		652 AlaIleValSerLeussrAspGI	632 SerILeValILeArgThrILeValLeuAlaAspGLyGInALaGLuPheGLyValGLyGLy	12 PIOATGETY VALLY X SETE TY ALABERGY TO THE PROPERTY THAT AND THE CONTROL OF THE CONTROL OF THE PROPERTY THAT AND	592 Sermetingslyalarrollyslyskyficterinitetteaspatgleeugidenty 61	2025 GCGCGCTGCGCAGGACAGCAGCCCGGTGGCGGCGTCCGGGCGGCCTTCCCCGGCGAA 20	20299 GACCCGGTGTTCCAGGTCGAGACGTACGCGACCGTGCACCAGCTGGTCAGTACCGTCACG 2

8 8 8 8 8 9

B 8 8 8

B 65 B 65

8 8 8

194 202	Qy 179 GlulleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArg 193	Oy 159 GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg 178	Oy 139 AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg 158	ັນ ພ	Qy 100 GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly 119	386	Qy 60 GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly 79	QY 40 LeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg 59	Qy 21 GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArg 39	1 MetArgThrLeuLeuIleAspAsnTyrAspSe 	Gaps: AP006618 17 (1-110000)	ore: 1635.50 Matches: 3 rcent Similarity: 60.40% Conservative: 6 st Local Similarity: 51.85% Mismatches: 2 ery Match: 45.77% Indels: 3	AP006618 60 600001 6021225 ontinuation (18 of 61) of AP006618 from base 1700001 (AP00 ignment Scores:	006618_56 5600001 006618_57 5700001 006618_58 5800001 006618_59 5900001	006618 ⁵² 5200001 006618 ⁵³ 5300001 006618 ⁵⁴ 5400001 006618 ⁵⁵ 5500001	006618_48	AP006618_42 4200001 4310000 AP006618_43 4300001 4410000 AP006618_44 4400001 4510000 AP006618_45 4500001 4610000 AP006618_46 4600001 4710000 AP006618_47 4700001 4810000
Qy Db	B 8	, B &	S B 8	B &	B 8	B 8	B &	da Yo	. B &	D	Db	8	д Qу	P 64	Qγ	B 8	לם עם
540 LeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThr 559	520 AlaGlyArgGluLysAspArgAlaGluAsnLeuWetIleValAspLeuValArgAsnAsp 539 	LYBGLYTITATGPTOATGGIYGLYTITATAGLIUGIHABDGIINATGHEUNTGHAIAABDLEU 		460 AlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSer 479	440 ThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArg 459	420 LysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeu 439	400 GluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeu 419 	380 ThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyILePro 399		340 PheAlaAspArgAlaIleAlaLeuAspHisĠlnGluGlyCysCysTyrLeuLeuAlaLeu 359 		300 AlaproGlilleuPropheGluPhAAshLeuGlyTyrVaIdLyTyrIeuGlyTyrTGlilleu 319	280 ThrArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProVal 299 53277 GTCGCCGGGGACGTGCTGAGTTATCTGTCCACCAGCTGCGCGAGCGGCACGTCGAGCTG 53218	260 ThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArg 279	240 GluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeu 259	221ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeu 239	53559 CGTCCGGCGACACCCGTGACGCCCGCCCGCCGGTCGGCCGGC

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 12
AP003593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                               gene
                                                                                  CDS
                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            52407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52467 TATTCGACCGTCCACCAGCTGGTCTCGACGGTGCGCGCACCCTGCGCCCGGACGTCGAC 52408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             52227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      620 LeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIleVal
                                                                                                                                                                                      Submitted (02-MAY-2001) Takakazu Kaneko, Kazusa DNA Research Institute, The First Laboratory for Plant Gene Research; Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nostoc sp. PCC 7120 DNA, complete AP003593 BA000019 AP003593.1 GI:17132540
                                                                                                                                                                                                                                                                                                                                                                                                             Complete genomic sequence of the filamentous nitrogen-fixing cyanobacterium Anabaena sp. strain PCC 7120 DNA Res. 8 (5), 205-213 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Watanabe,A., Iriguchi,M., Ishikawa,A., Kawashima,K., Kimura,T., Kishida,Y., Kohara,M., Matsumoto,M., Matsumo,A., Muraki,A., Nakazaki,N., Shimpo,S., Sugimoto,M., Takazawa,M., Yamada,M., Yasuda,M. and Tabata,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nostoc sp. PCC 7120
Nostoc sp. PCC 7120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kaneko, T., Nakamura, Y., Wolk, C.P., Kuritz, T., Sasamoto, S.,
                                                                                                                                                                                                                                                                                                                                                Kaneko, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacteria; Cyanobacteria; Nostocales; Nostocaceae; Nostoc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AP003593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAla 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLys 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              eceece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerAla 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluGluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGly 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCACGACGGCGCTGGCGGATCGGGGCGGCGCGCGATCGTGCTGGATTCCGATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCGGCTTCCTCGGACTCGGCGGCACCGCCGACCTCAACATCGTCATCCGCACCGCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCATCGACTGCGTGCGGGCCTGCTTCCCCGGCGGCGTCGATGACCGGCGCCGAAGCTG 52348
                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 333550)
                                                                                                                                                                                                                                                                                                                                  Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52102
                                                                complement (52. .1455)
/gene="all3408"
                                                                                                complement (52. .1455)
/gene="all3408"
/codon_start=1
/transl_table=11
/product="nicotinamide nucleotide transhydrogenase,
                                                                                                                                /note="synonym:Anabaena
                                                                                                                                                 <u></u>
                                             note="ORF_ID:all3408"
                                                                                                                                                                               organism="Nostoc sp.
                                                                                                                                               xref="taxon:103690"
                                                                                                                                                                  type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              333550 bp
                                                                                                                                                                                                                                Fax:81-438-52-3934)
                                                                                                                                                                               PCC
                                                                                                                                ·ďs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genome,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA
                                                                                                                                  PCC7120"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear BCT 28-NOV-2001 section 13/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                gene
                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
 Sdo
 /gene="alr3413"
4506. .4928
                                4506. .4928
```

```
/gene="rpl34"
4346. .4480
/gene="rpl34"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="alr3411"
3627. .4199
/gene="alr3411"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="BAB75107.1"

/db_xref="GI:17132541"

/db_xref="GI:17132541"

/db_xref="GI:17132541"

/db_xref="GI:17132541"

/translation="MSDFLPTGIQLTYLVAASLFILGLKKLGSPATARNGNVIGAVGM
/translation="MSDFLPTGIGLTYLYGAGAYKVQMTENPQMVGLLNGLGGAASA
LVAVABEFWRLLDAGAPVPLDVNISMLLDVLIGGVTFTGSFLAFAKLQGLISGSPITF
LQQPFNLLLLGGYLAGSAYLLTVTDDSLDFLAVVAVSLVLJGVMFVI PIGGGDMPVVIS
LLNUSGSIAAAAAGFYWNNNLIJAGALVGASGLIJTELMCKAMNRSLFSVLFSAFGS
VSAGGAAATGTTDQTVHSIDPEEGAMMLGYARSVVIVPGYGMAVAQAQHSVRELADQ
LERMGYDVKYALHPVAGRMPGHMNVLLABANVPYTQLYDMEDINDQTEQAVALVIGA
LERMGYDVKYALHPVAGRMPGHMNVLLABANVPYTQLYDMEDINDQTEQAVALVIGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MTFLISKVADFABIRYLSSGDFMRIAVAKEIEVCERRVALNDDT VARLVKQGLEWWZEAGAGERSFEDDAAYVAAGATI VGDSGKLMEDVLLKVSPPQER EDGRIEIDLLAKEAGAGERSFEDDAAFVAAGATI VGDSGKLMEDVLLKVSPPQER EDGRIEIDLLAKEAGAGERSFEDDAAFVAVAAGATI VGDSGKLMEDVLLKVSPPQER SQASLAGYKAVLIAAAALPKYFPMLTTAAGTIAPAKVFIMGAGVAGLQAIATARRLGA VVBAFDIRPAYVEEVQSLGAKEVEVKLEEETTAAGGYAKEISEASKQRTQEVVAEHVK NSDVYLTTAQVYGRKAVEVLVTAEMVAQMKFGSVIVDLAAEQGGNCACTDPGKDIVMAGVIVTIGFINLPSSMPVHASQLYSKNLTSLLQLLIKDKALQVDFTDDIIDAACITHAGEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="ORF_ID:all3410"
/codon start=1
/transI_table=11
/product="nicotinamide nucleotide transhydrogenase,
subunit alpha"
                                                                                                                                                                                                                                                                                                                                                                                        /transT_table=11
/protein_id="BAB75110.1"
/protein_id="BAB75110.1"
/db_xref="G1:17132544"
/trans1ation="MLLYVNI-VISIKLPWWRRLTMRRLL-SGLA-VTSCVIAGL-PTITSA
/trans1ation="MLLYVNI-VISIKLPWWRRLTMRRLL-SGLA-VTSCVIAGL-PTITSA
QSLPG-PTLF-SGVKSENQL-PFRLD-FGGOSNSWRRYILRI-PAQKWKL-AAAQFAITYDDHY
KGSFDTKDIBIRVGDKKV-PVSEVKWDREGRLL-BIF-PBE-PVPAGSR-VEL-VL-SNVRNPAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="ORF_ID:alr3411
hypothetical protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (1785. .3020)
/gene="all3410"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement(1785. .3020)
/gene="all3410"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /trānslation="MTEALLAALFVFVLASFIGFEVINKIPPTLHTPLMSGSNAISGI
AVIGAILASGERNTNLSVILGLIAVTLATVNVVAGFLVTDRMLQMFKKKEVKA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="nicotinamide nucleotide transhydrogenase, subunit alpha"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (1452. .1745)
/gene="asl3409"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="asl3409"
                                                                                                                                                                                                                                                                                                                               4346. .4480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RNQRVKDALQASTTQLVRD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GSAKDMVAKLVSEVKQL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     subunit beta"
                                                                                                                                                                                                                                                                                                                                                                GGTFYFNCQILSPGDVPLLRYLGTWILSIN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="ORF_ID:as13409"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NDVVNPAARSDTASPIYGMPILEVDRAKHTIVIKRGMSAGFAGVDNELFYKDKTTMLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /protein_id="BAB75109.1"
/db_xref="GI:17132543"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="BAB75108.
/db_xref="GI:17132542"
translation="MORTLGGTNRKRKRTSGFRARMRTPDGRNVIRARRKRGRHRLSV
                           protein_id="BAB75111.1"
/db_xref="GI:17132545"
                                                                                           transl_table=11
product="50S ribosomal
                                                                                                                             'codon_start=1
'transl_table=
                                                                                                                                                                                          note="ORF_ID:asr3412"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     id="BAB75108.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein"
                                                                                        protein L34"
```

gene

Sg

gene

SgS

```
/transl_table=11
/protein_id="BAB75113.1"
/protein_id="BAB75113.1"
/db_xref="01:17132547"
/translation="MGIREEVYYEGGPHIGDLILNILVGLTVVGIPLAVGAIVRALWL
RYRITDRRISYMGGMWGDRSDVIYSEITKIVKVPRGLGIWGDMVVTLRNGSRLELRA
VPNFREVYDYINDKIAAKNPQYTAK"
5513..6655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transT table=11
/transT table=11
/protein_id="BAB75114.1"
/protein_id="BAB75114.1"
/db_xref="GI:17132548"
/tb_xref="GI:17132548"
/tb_xref="GI:17132548"
/tc_anslation="MDEGIGFLSNNVMLPIIDFFYSVVPSYGLAIVALTLIIRRALYP
LSAGQIRNMRKMRIVQPLMQKRMAEIKERYKDDPQKQQEEMMNVQKEFGNPLAGCLPL
LLQMPVLLALFATLRGSPFAGVNYSVNLQIF9SSQIENQPGAFTPPQNIYIADGEH
TKVTAILPGGNKLAVGEKTKIQVQTLEGKPFPVLLAEBFESKLSPEMKITKGEDRIKI
DAEGNIEALQPGDVTIQGTIPGLAADKGFLFIDALGRVGAIDFDNTIHMDIVGNIVFG
GISLYVSQMLSGQNSSGGNPQQDTVNKITPVIFSGMFLFFELPAGVLMYMVIGNVFQT
                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
/protein_id="BAB75115.1"
/protein_id="BAB75115.1"
/db_xref="GI:17132549"
/translation="MSNDMQRQQWLQSLLELTGVSAEIHGSLETAQSHNEDSQEID
/translation="MSNDMQRQQWLQSLLELTGVSAEIHGSLETAQSHNEDSQEID
GYWLTIDETNLNPQQIQTLIGADGSVLDAIQYLVNSTLMINQPQBGQASYTVELMGYR
VKRQAEIQKIAETAAEQVRSTGQEIEIKSLSSAERRLVHTFLKDFGDLETFSRGKEPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transf table=11
/product="ribonuclease P"
/protein_id="BAB75112.1"
/db_xref="GI:17132546"
/td_xref="GI:17132546"
/td_xref="GI:17132546"
/tb_xref="GI:17132546"
/tb_xref="GI:17132546"
/tb_xref="GI:17132546"
/tb_xref="GI:TAAMQCLLPRIAPGW
/tb_Xref="GI:TAAMQCLLPRIAPGW
LDTAAQTQPVDEVQNIPSTLIGVSISTKVSKRAVVRNRIKRQITAAMQQLLPRIAPGW
KLVVIVKPTAAESKCGSQQFLQELEQLLAQTEVLHGHS"
                                                                                                                         /transl_table=11
/protein_id="BAB75116.1"
/protein_id="BAB75116.1"
/db_xref="GI:17132550"
/translation="MDAIFIPOLTKAPERTEEVQVKEFLPGLETLTPVRGLVRIQHQG
NYLQVSAQAEAIITCTCNRCLQQYNQRLAVNTQEVIWLDEAVEQEQNLPLEREVAMED
LLETVSPNGYFYPSEWLYEQMCLALPQRQLCDINCPGILTDNSGESSEQGIDNRWSGL
complement (7972. .9447)
/gene="all3418"
/note="ORF_ID:all3418
                                                                                     complement (7972. .9447)
                                                                                                                                                                                                                                                                                                                                   /gene="alr3417"
7339. .7848
                                                                                                                                                                                                                                                                                                                                                                                              RHLVVRPAVNEL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="alr3416"
/note="ORF_ID:alr3416
hypothetical protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="alr3416"
6659. .7177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LQTYILSREPLPEEIQKIVETQEKQAVAEQKTLPFEPKSSKKKTTG"
6659. .7177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="ORF_ID:alr3415
hypothetical protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="alr3415"
5513. .6655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="ORF_ID:alr3414
hypothetical protein"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="alr3414"
4915. .5298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4915
                                                                                                                                                                                                                                                /note="ORF_ID:alr3417
hypothetical protein"
/codon_start=1
                                                             /gene="all3418"
                                                                                                                                                                                                                                                                                                           /gene="alr3417"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="alr3415"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="alr3414"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="ORF_ID:alr3413"
                                                             밁
                                                                                                 S
                                                                                                                                            문
                                                                                                                                                                              Ś
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
:
                                                                                                                                                                                                                                                                                                                                                                                            33775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          33595
                                                                                                                                                                                                                                                                                                             33835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             33655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           33475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          33415
                                                                                                                                                                                    198
                                                                                                                                                                                                                                                                                                                                                    158
                                                                                                                                                                                                                                                                                                                                                                                                                                    138
                       217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40
```

gene

Sg

gene

SgS

gg

```
hypothetical pu
/codon_start=1
/transl_table=1
                                         protein"
```

```
US-10-089-514-2 (1-686) x AP003593 (1-333550)
                                                                               34009 CCAGCGCCATCCCAAGAATTTACTGTTTGTAGCCAAAAACTAGATTATTACCTTGATACA 34068
                                                                                                                                                                                                                                                                                 33895 TATAAATTGCTGGAAAACTTCCAA-----GCCATTACGGAAGGATTCATCCGCCAAAAT 33948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33715 GAAATTCCTACACCTTTTCAAGTTGTCCGCTATCATTCTTTGCTGGTTGCGGAAGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           33535 CCTAAAGATTTCGGTATTTGTCAACAGATAĆTACAAAACTATTTAGATGTTĆCCTTGCTT
                                                                                                                                                                                                                                                                                                                                 178 ArgGluIleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHis 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21 GlyGluAlaThrGlyGlnProProValValValProAsnAsp---AlaAspTrpSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle ::::::||||||:::||| ||||
GluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSer 236
                                                                                                                                                                                                                                  GlyAlaAspSerPro-----
                                                                                                                                                                                  ĠĠTAGACATCGCĊĊCAAATTAGAAAGCAAAAGTTTCTCTATTTCTCCTAACTCACCTATT 34008
                                                                                                                                                                                                                                                                                                                                                                                    ArgGluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCAGTTGTTTAGAAAAAGTAGCCTGGACTGAAGACGGGTTGGTAATGGGGGTTGCGTCAT 33834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProAspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHis 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyLeuProSerProPheThrAlaValArgTyrHisSer---LeuAlaAlaThrAspLeu
:::||||:::|||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGAACCTAAACATGGTCGATTGAGTCATGTTATCATAATGGTGGTGATTTATTCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProGluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArg 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GETGTTTGTCTTGGTCACCAAGGAATTGGTCATTATTATTGTGGTAAGGTCATCCACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GluArgAspPheGlyIleSerArgArgAlaIleThrAsp---SerGlyLeuProValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTAAAACAACTTGTTTTTGATAATATAGTCATTTCTCCTGGGCCTGGTCGTCCTGAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGAAGTCAACGGAGAGTTGCCCCTTGTTATTCATAATGACAAATTAGATTGGTATGAA 33474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATCAAAACATTAATTATTGACAACTACGACTCTTATACTTTTAATCTCTACCAGATGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.17e-67
1606.00
62.20%
47.79%
                                                                                                                             ----TyrGluLeuHisValArgArgValAspValLeuProAspAla 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matchés:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          333550
335
101
227
38
9
                                                                                                                                                                                                                                                                                                                                                                                       33894
                                                                                                                                                                                                                                  202
                                                                                                                                                                                                                                                                                                                                                                                                                                         177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      33714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      33654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             33534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     33414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           33594
```

35352

656

636

35292

616

35412 676

```
34933
                                                                                                                                                                                                                                                                                                                                                         34873
                                                                                                                                                                                                                                                                                                                                                                                                                                              34813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 34483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34246
                                                                                                                                                                                                                                                                                                                                                                                                   497
                                                                                                                                                                                                                            537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACATATAAAGATGATATTTCTAGATGTCTCAAAGAAATTCGTGAGGGGGAAACTTACCAA 34692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAla
           GACATGGACGCAACCGACTGCATTCGTCTGGCATTTCCGGGGCGGCTCGATGACAGGTGCG
                                   GlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAla
                                                                                                                      ValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgPro
                                                                                                                                                                             GCAACGATTTAGGGCGAGTTTGCCAAGTCGGGAGTATCCATGTTCCCAAATTAATGGAT
                                                                                                                                                                                                                                                                  GAAAGTTTGCGTAGCAGCGAAAAGAGCGATCCGAAAACTTAATGATTGTTGATTTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                         ### ATCGCCTGTTCTTCCCCGGAGCGATTTCTGCAAATTGACCGTCAAGGCTGGGTAGAAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IleCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaTyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGACACGCACTCAAGAGAGTATTTTTGACTATCTCAAACGCGAAATTAATCGTCGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrThrArgThrArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArg
                                                                                             GTAGAAAGTTATGCAACGGTGCATCAACTTGTCAGCACTATCCGTGGTTTATTATCCCCC
                                                                                                                                                                                                                 ArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGlu
                                                                                                                                                                                                                                                                                        AlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGATTACGCCAAGTTAATCCGGCTCCCTACTCTGCTTTTCTACGGTTTTGGTGAGATGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTTGCCTGACTAATCGATTATGCACAGACACAATTGCTGATCCATTGGAATTTTATCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGTACTACATCTCACCCCGTTACTTTC------CGTTTAAGTCGGTCATACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuAlaLeuAspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGCCCA---TCTGATGAGCTACCTTTTGATTTTAACTGTGGTTTTTGTGGGCTACTTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThr
                                                                                                                                                                                                                                                                                                                                                         AAGCCGATCAAGGGAACTGTACGCCGGGGAGAGACTCCCGAAGAAGATTTTTTACTCCGG
                                                                                                                                                                                                                                                                                                                                                                                               LysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGAACTGAAGGCAAAATCCGGGTCTGGGTTAGAGCATCCCTCATTATTTCCCGATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTACTCGTTTCTTACTGCACCCAATCTCAAGAATTGACGATTACACAATCG----GGTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAACAGACATTTGTTCATCTTTTTGGTGAAGATCCTCATGCTTTTTTGGCTTGATAGTAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --CCGCCTCTTCCTCCCTCGTTCCT
                                                                                                                                                                                35052
                                                                                                                                                                                                                                                                                                                                                                                                 516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            256
        35172
                                                                                             35112
                                                                                                                                                                                                                          556
                                                                                                                                                                                                                                                                    34992
                                                                                                                                                                                                                                                                                                                                                         34932
                                                                                                                                                                                                                                                                                                                                                                                                                                         34872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                34752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      34422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        34362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       34128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 13
STH575648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                         gene
                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35413 ATG 35415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   35233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene; aurF gene; aurB gene; aurC gene; aurD gene; aurE gene; aurF gene; aurG gene; aurH gene; aurI gene; cytochrome P450; N-oxidase; O-methyl transferase; PABA synthase; polyketide synthase type I; transcriptional regulator.

Streptomyces thioluteus
Streptomyces thioluteus
Bacteria; Actinobaccus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (07-JUL-2003) Hertweck C., I
Hans-Knoell-Institute, Beutenbergstr.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Iteration as programmed event during polyketide assembly; molecular analysis of the aureothin biosynthesis gene cluster Chem. Biol. 10 (12), 1225-1232 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales. Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomyces thioluteus aureothin biosynthesis (aurABCDEFGHI genes), strain HKI-22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hertweck,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 He,J. and Hertweck,C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STH575648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14700630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Leu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCTGATGTGGAAATGGAATTTCAAGAAACTATCCTCAAAGCTAATGCGCTAATTCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerAspGlnGluGluPheThrGluThrValValLysAlaArgAlaMetValThrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCGCCGTACTGACACCAAATCAAACTTCTATTGGTATAGGGGGTGGGATTGTCGCACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCAGGGGCGATCGGTTTTTTGGGTGTAAACGGTACAGCCGACTTGAATATTGTCATCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 29132)
                                                                                                                                                                                                                                                                                                                                                                                                              /mol_type="genomic DNA"
/strain="HK1-22"
/db_xref="taxon:66431"
2154. .2969
complement (3029.
/gene="aurE"
/codon_start=1
                                                                                                                                                                                                                     /codon_start=1
/trans1 table=11
/product="AurD protein"
/protein_id="CAE02599.1"
/db_xref="GI:41322766"
                                                                                                                                 /trānslation="MUNAVYKLPSDLSFNILGPVAVSSTEGFLPLGPARQRAVLSALL
LAPGQVVGAERLITEAIWPAGPPGNAVASLHSYVSHLRRQLEDCPPWGRNRILRREPQ
GYLLAVEAERVDARREEGLLAREGRQLLREGRY PEASQVLAFCLELWRGSPYAELGDYE
PAVCEAARLEELRLATLEALWEAELAWGHDYVTAIAELAAVSARFPTRERLGWLLMVA
                                                                                         complement (3029.
                                                                                                                                                                                                                                                                                                                              /gene="aurD"
2154. .2969
/gene="aurD"
/function="transcriptional
                                                                                                                 LCEVDRQAEAVAVYNRIRKALAQELGVDPGRELRSLFARILRDESVGRACLQS
                                                                       /gene="aurE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Streptomyces/mol type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29132 bp
                                                 .4546)
                                                                                           .4546)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bioorganic Synthesis, 11a, Jena, 07745, GERMANY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCT 23-JAN-2004
```

밁 S 밁 Š 멍 Ś 밁 Ś В Š 밁 Ś 밁 Ś 밁 Ś 밁 Ś В ş 밁 Ş 밁 Ś 밁 Ś В δ В Ś 밁 Ş 밁 Ś 밁 Ś 문

SdC

```
/produci_putative_acyl-coA ligase"
/produci_putative_acyl-coA ligase"
/produci_putative_acyl-coA ligase"
/produci_putative_acyl-coA ligase"
/produci_putative_acyl-coA ligase"
/produci_putative_acyl-coA ligase
/
```

gene

gene

Sg

gene

gene

RVAVRAAGLNFRDVVMALGMVDDRRALGGEIAGIVTEAGPGVTGFAPGDRVFGLADGC

```
| /gene="auxc"
| /gen
```

Pred. No.: 1.51e-68 Excret. Smilarity: 60.781 Score: 358 Excret. Smilarity: 60.781 Bess. Local Smilarity: 50.784 Bess.	IGPVAVVDHRLIARIPEGWSFPQAASVPVTFLTAYYGLVDLAGVRPGDRVLVHAAAGG VGMAAVQLARHLGAEVFATAGFAKWDTVRALGIDDDHLASSRTDEFETRFAAEDGGRG IDVVLNSLAGEMADASLRLVRPGGRFIEMGKTDIRDADEVAAAYEGVVYRAFDLMDGG AECIARIFAELLALFEGGKIQLVPVTTWDVRQAPEAFRYFAQARHVGKIVLTVPPAWD
13 13 13 13 13 13 13 12 12 12 12 12 13 13 13 13 13 13 13 13 13 13 13 13 13	Db 12576 Qy 283
	176 ACCGGGGAGAACACGGTCGCGGTGCGCGACGCCGGTGAACGGGCCGAGCCCGGC 12632 283 ProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAlaProGlu 302

gene

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
AP005025/c
                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PUBMED
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          641
                                                                                                                                                                                                                                                                                       Submitted (29-MAR-2002) Director-General of Biotechnology Center, National Institute of Technology and Evaluation, Biotechnology Center, 2-49-10 Nishihara, Shibuya-ku, Tokyo 151-0066, Japan (E-mail:bio@nite.go.jp, URL:http://www.bio.nite.go.jp/, Tel:81-3-3481-1933, Fax:81-3-3481-824)
This work was done in collaboration with Haruo Ikeda(*1), Jun Ishikawa(*2), Akiharu Hanamoto(*3), Chigusa Takahashi(*3), Mayumi Shinose(*3), Hiroshi Horikawa(*4), Hidekazu Nakazawa(*4), Tomomi Osonoe(*4), Norihiro Kushida(*4), Hisashi Kikuchi(*4), Tadayoshi Shiba(*5), Yoshiyuki Sakaki(*6,*7), Masahira Hattori(*1,*7) and Sacoshi Omura(*1,*3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ikeda, H., Ishikawa, J., Hanamoto, A., Shinose, M., Kikuchi, H., Shiba, T., Sakaki, Y., Hattori, M. and Omura, S.
Complete genome sequence and comparative analysis of the industrial microorganism Streptomyces avermitilis
Nat. Biotechnol. 21 (5), 526-531 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Proc. Na
21477403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Shinose,M., Takahashi,Y., Horikawa,H., Nakazawa,H., Osonoe, Kikuchi,H., Shiba,T., Sakaki,Y. and Hattori,M. Genome sequence of an industrial microorganism Streptomyces avermitilis: deducing the ability of producing secondary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Omura, S., Ikeda, H., Ishikawa, J., Hanamoto, A., Takahashi, C., Shinose, M., Takahashi, Y., Horikawa, H., Nakazawa, H., Osonoe, T., Kushida, N., Director-General of Biotechnology Center, Shiba, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces avermitilis MA-4680
Bacteria; Actinobacterida; Actinomycetales;
                                     Following url is also available. http://avermitilis.ls.kitasato-u.ac.jp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 (bases 1 to 298300)
Omura, S., Ikeda, H., Is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptomyces avermitilis MA-4680 Streptomyces avermitilis MA-4680
                                                                                                                                                                                                                                                    and J. Ishikawa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              metabolites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Omura,S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AP005025 BA000030
AP005025.1 GI:29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomyces avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22608306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AP005025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1572948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAla-----Leu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGGGGCCGCGGAGGCC 13826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspGlySerAlaValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGGAGTTCGACGAGGTGCTGCTCAAGGGCCACGCGCTGGTGCGGGCGCACGGGCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCGGTACGGGCACGGTCATCGGCACCGGCGCGCGCCATCGTCCTCGACTCGGACCCGGAC 13748
                                                                                                                                                                                                  *1 Kitasato Institute for Life Scien
*2 National Institute of Infectious
                                                                                  The Kitasato Institute
National Institute of Technology and Evaluation
School of Science, Kitasato University
Institute of Medical Science, University of Tokyo
RIKEN, Genomic Sciences Center
                                                                                                                                                                                                                                                                    finishing process and all annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Natl. Acad.
                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and Hattori, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ikeda, H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:29604584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sci. U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ishikawa,J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             298300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genomic DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98 (21), 12215-12220 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hanamoto, A.,
                                                                                                                                                                                                  Sciences, Kitasato
Lious Diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complete genome,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nakazawa, H., Osonoe, T.,
                                                                                                                                                                                                                                                                       were
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Takahashi, C.,
                                                                                                                                                                                                                                                                    done by H. Ikeda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BCT 10-MAY-2003
                                                                                                                                                                                                                          University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13808
```

```
/product="glucose-1-phosphate thymidyltransferase"
/protein id="BAC68657.1"
/db.xref="GI:29604588"
/translation="MMGIVLAGGTGSRLYPLTRALSKOLLPVYDKPMIYYPLSVLMLG
GIKDILVISSPDHLEQFRRLLGDGSRLGLNIDYAAQQRPGGIAEAFLIGADFIGQDQV
                                                                                                                                                                                                                                                                          complement (3187.
                                                                                                                                                                                                                                                                                                                                   complement (3187. .4086)
                                                                                                                                                                                                                                                                                                                                                                                                                   THTLLRAATDAAVDR FVY I STDEVYGS I DSGSWTEDAPLE PNS PYSASKASSDLLARS
FHRTHGLPV I I TRCSNNYGPHQFPEKL I PR FVTHLLNGTKVPL YGDGENVRDWLHVDD
HCRGI ALVAERGRPGE I YH I GGGTELSNRELTARLLDLLGVDWSMVE PVTDRKGHDRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            avermectin gene cluster /
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (2123.
/gene="aveBII"
/note="SAV946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGALRAADETERFLRRTRRH"
complement (2123. .319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EQMELFGLGALVPRLAELLVSRG1TEPVDDFLSGPEDFNLVCLPRAFQYAGDTFDERF
AFVGPCLGKRRGLGEWTPPGSGHÞVVLISLGTVFNRQLSFFRTFVRAFTDVPVHVVIS
LGKGVDPDVLRPLPPNVEVHRWVÞHHAVLEHARALVTHGGTGSVMEALHAGCPVLVMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="glycosyl transferase"
/protein id="BAC68655,1"
/db_xref="GI:2004586"
/tanslation="kSDH9FLFMSAPFWGHVFPSLAVAEELVHRGHHVTFVTGAEMADA
/translation="kSDH9FLFMSAPFWGHVFPSLAVAEELVHRGHHVTFVTGAEMADA
VRSVGADFLRYESAFEGVDMYRLMTEAEPNAIPMTLYDEGMSMLRSVEEHVGKDVPDL
VAYDIATSLAVGRVLAASWGRPAMTVIPLFASNGRFSTMQSVLDPDSAQVSAPPPRFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="ave
979. .2217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MSRFTPRLRAAVARMDPPS"
979. .2217
                                                                                                                                                                                           avermectin gene cluster
                                                                                                                                                                                                                                                                                                                                                                ARSRPLPAGRRPPRPWPAASA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /tranblation="MTGGAGFIG$HFVRRLLTGAYPAFTGAEVVVLDKLTYAGRLENL
APVLGSPSLIFVHGDICDGPLVAĎLMDGSDMVVHFAAESHVDRSVADAAEFVRTNVLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 avermectin gene
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="mcvdrdgrgagytadlartrgaraawpevadvsdgaamerfaer
vaetygvvdllunnagigmagrfldtsvedmortlgvnlmgvihgcrligromaergo
gghlvtvasaaafoptravfayatskaavlmlseclkaefaefgvgvsvvcpgfyrts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="or
208. .921
                                                                                                                                        /codon_start=1
/transl_table=
                                                                                                                                                                                                                          /gene="aveBIII"
/note="SAV947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/product="dTDP-glucose 4,6-dehydratase"
/protein id="BAC68656.1"
/db_xref="GI:29604587";
                                                                                                                                                                                                                                                                                                          /gene≖"aveBIII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="aveBII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LSRDAQVTGRRI AELGLGRMVQPBEVTATTLRRHVLDI I SDDAI TRQVRQMQRATVEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FASAMHFAGVPRLEQERLRALFAGRGCSAEKVAAAVLRSVARDSAVVTVTAEARLSRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                avermectinius"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="This strain is also named as
NCIMB 12804 or NRRL 8165.~synonym:
                                                                                                                                                                                                                                                                                                                                                                                         SLDISKISAELGYAPRVPFEEGLAQTVQWYVENRTLWEPLTARPELPVSDGASGAET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="SAV945"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="aveBI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="BAC68654.1"
/db_xref="GI:29604585"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="reductase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 not involved in biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="SAV944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /mol_type="genomic DNA"
/strain="MA-4680"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="orf-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  db_xref="taxon:227882"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               organism="Streptomyces avermitilis MA-4680"
                                                                                                                                        l_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aveBI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          orf-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .3190)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .3190)
                                                                                                                                                                                                                                                                                .4086)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   also named as strain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of avermectin"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31267,
```

gene

gene

gene

```
Alignment Scores: Pred. No.: Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                          Sd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                complement (7442. .8215)
/gene="aveBVII"
complement (7442. .8215)
/gene="aveBVII"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MGRFSVCPPRPTGILKSMLTTGMCDRPLVVVLGASGYIGSAVAA ELARWPVLLELVARRPGVVPPGGAASTETRTADLTAASEVALAVDADVVIH VARLT GGAAMRAAESDPVAERVNVGMHDVVAALRSGRAVVPAGSVYQVGRGRVVGAGSGRAWALAESDPVAERVNVGMHDVVAALRSGRAGPPVVVFAGSGVQVGRGRVVGAGSEPDEPVTAYARQKLDAERTLKSATVEGVLRGISLRLPTVYGAGPGPQGNGVVQAMVLRALADEALTVWNGSVVERDLVHVEDVAQAFVSCLAHADALAGRHWLLGSGRPVTVPHLFGAIAAGENSATGRPAVPVTAVDPPAMATAADFHGTVVDSSAFRAVTGWRPRLSLQEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="aveBVI"
complement(6036. .7445)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       compi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FPDERSCLFVPPYOEPVLSEAVGHRFPTAQTCOSVSRRGVVGCHHFTATPPGOAKVYHC
ARGBALDFVUDLATGSSPTFGOWDSVLLDOERFRSVYLFI CWGHAFVALEDDTAMVYLM
SSGYVPQNEHALSPEDPDLALFLGHHLGRAFILSERDRRAPTLQQALRRGWLPEYRAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="aveBV" complement (5297.
                                                                                                                                                                                                                                                                                                                                                     PEWOOD I HIQPEIGILGILAKKFDGVLHFLMQAKMEDGNINLVOLS PTYQATRSNYTK
VHGGAAVKYLEYETQPRATTVVDVLQSEHGAMFHRKYNRNI VVETDEDVPLDDDFRW
LTLGQIGELMHRDNI.VNMDARTVLACLFTEFDEPALHSDAELLSWYAAERSHISVHS
RRVPLAGIPGWTTGAESIAHHADRYFRVVAVRVEASNREVAAMTQPLIEBCGHGITAF
                                                                                                                                                                                                                                                                                                                                                                                                                                /protein id="BAC68660.1"
/db_xref="GI:29604591"
/translation="MSVRADADHTEPSTAHRAARRPARVPRPLRRRGRHRRRTSLDA
FTGMWTRRSGAHRFRVERIPFHGMDAWSFHPGTGNLAHRSGREFSVEGLHVRGGEQPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (5297. .5974)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             avermectin gene cluster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GYGEYLMSIAAEAAVRSPGCAYS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SLVLGDNIFHGMGFSHLLRSHTRDVDGCVLFGYAVTDPERYGVGEVDASGKLLSVEEK
PTAPRSNLAITGLYLYDNDVIEVARGIRSSARGELEITDVNRAYLAEGRARLVDLGRG
FTWLDAGTHDSLMHAGQYVQVLEKRQGVRIACLEEIAFRMGLIDADDCYLRGVELAGS
                                                                            /product="dTDP-6-deoxy-L-hexose
/protein_id="BAC68661.1"
/db_xref="GI:29604592"
                                                                                                                                                                           avermectin gene cluster"
                                                                                                                                                                                                                                                                                                   VNVQARTLLSLLTTRAVEL"
                                                                                                                                                                                                                                                                                                                   drtryaavhseeggrfihaqaryifveadesqapndpppgyrwctpgqitqiirygry
                                                                                                                                                                                                                                                                                                                                       LTRRIGGVPHLLAHGRVEGGFLDTIELGPTVQYTPRNYAHLTGPARPRFLDLVLEAAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      avermectin gene cluster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RGLDEKL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transI_table=11
/product="dTDP-4-keto-6-deoxyhexose 3,5-epimerase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       avermectin gene cluster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="SAV949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LDHMVAAYV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
/product="dTDP-4-keto-6-deoxy-L-hexose
                                                                                                                                                                                                /note="SAV951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="SAV950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="BAC68658.
/db_xref="GI:29604589"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="SAV948"
                                                                                                                                     transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene="aveBVI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      translation="MTLGRPRRSSADRPAPPAGARATAAGVTVRRLVVEGAVEFTPTV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein_id="BAC68659.1"
/db_xref="GI:29604590"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene="aveBV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="aveBIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 product="dTDP-4-keto-6-deoxy-L-hexose2,3-dehydratase"
                                                                                                                                                             codon
  3.03e-67
1596.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         lement(6036. .7445)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .5243
                                                                                                                                                             start=
                                                                                                                                     _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aveBIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .5974)
    Length: Matches:
                                                                                                                     3-0-methyltransferase"
    298300
354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4-reductase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarit
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                          밁
                                                                                             Ś
                                                                                                                                     밁
                                                                                                                                                                         S
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-089-514-2
                                                            267073
                                                                                                                                                                                                                    267192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      267612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             267792
                                                                                                                                                                              241
                                                                                                                                                                                                                                                            221
                                                                                                                                                                                                                                                                                                                                     203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100
                      281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGAGGTGAACGGCGAGGAGCAGCGCCGGTCGTCCTCAATGACGCCCCGCCGGACGACATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGAAGACCCTGCTCATCGACAATTACGACTCGTACAACGTACAACCTGTTCCAGCTGATC
                                                                                                                                                                                                                                                                                                   TCCCACCGCCTTCACACCCGGCGGATCGACGTGGCCGTGGACGCCGAGGCGGCCTTCACC 267193
                                                                                                                                                                                                                                                                                                                         ---TyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluVal-ArgAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGATGTTCGTGÀACTTCCGCGAGCTGACGGCCTCCCGCGCGCGAGACTCGCACGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGACGTGACTTCGGCATCGTCGGCGAGCTGCTCGCCGCGGCCCCCGTGCCCGTGCTGGGC
gArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAlaPr 301
                                                            CGACGTCGAGAGCGGCCTCTGTGAGATCGAGCGGCCCGGGCCCGGGCCCGTGCGCAAGGTCAG
                                                                                                 rArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThrAr
                                                                                                                                       CGGATGTACACCGACGCGCCC-CGCGCGTTCTGGCTCGACAGCTCCCGGGTCGAGGAGGG
                                                                                                                                                                                                                                        GCCGAGGGGGCCGGGCAGCACCCGCCGTGCTGGTCCCCCGGCCCCGTCGCGTGGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGGCCCGTACGTCCGGAACGCGCACGACCGAGCCCCCCGTGCGGCCCCCCGTCCCCAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---AlaArgArgHisGlyAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GluIleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArg-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCCCGGCCGCTGTGGGGGGTGCAGTTCCACCCGGAGTTCCGTCCTCACCGAGTTCGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGAGCCTGGAGCCCACCGCCTGGGCGGAGGACGGCGTGCTGATGGGACTGCGGCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGCCCCAGCAGTTCACCGCGGTCCGCTACCACTCCCTGTCGGTACGGGAACCGCTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAsp---LeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGCCCCGCCACGGCCATCTGTCCACCGTCCGGCACAACGGCCAGGACCTGTTCGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCTGCCTCGGCCACCAGGGCATCGCGGCGGGCGGGGAGCGGGCCTGGGTGACCCCGGCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
||||||||||||||||||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGGATCTCCGGGATTTCGCCAACGTGGTGTGTCGCCGGGGCCCGGACACCCCCGCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pro---ValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-686)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               58.77%
48.49%
44.68%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      x AP005025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-298300)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75
247
55
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----AspSerPro---
                                                                                                   281
                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40
                                                                                                                                         267074
                                                                                                                                                                                261
                                                                                                                                                                                                                                                                                                                                         221
                                                                                                                                                                                                                                                                                                                                                                              267253
                                                                                                                                                                                                                                                                                                                                                                                                                                                         267313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      267373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                267433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           267733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        267793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59
                                                            267014
                                                                                                                                                                                                                    267134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                267673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               267913
```

```
밁
                                   S
                                                                                  밁
                                                                                                                     á
                                                                                                                                                              맑
                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
        265960
                                                                                                                                                                                                                                                                                 577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         lGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGl
                                                                                                                                                                                                                                                                                                                                                                                                   CAACGACCTGGGCCGGGTCTGCCGGACCGGGACGGTGAAGGTCACCCGCCTGATGGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                    9AsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTACCTCGCGGACATCGGGACCTGCAAGCGGGAACTCAAGGACGGCACCAGTTACGAGAT 266561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aTyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     yIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAACACCCGGCAGGGCGCACAGCAAGCGGCC---GACTGGCTCGACGCGGCGATGGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----AspArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACTGCGGTTCCGTCAACCGTCATCGGGCCCGAACTCCCGACGCCTGCTGCTGCTTCGC
                        rIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSe
                                                                                  CGGAGCCATCGGCTACTTCGGGTGCAGTGGGGGGCGCGGACCTCGCCATCGCCAGCCGCAC
                                                                                                                     rGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgTh
                                                                                                                                                            GAAACTGCGCACGATGGAGATCATCGACTCGCTGGAGACCGAGGCCCGCGGGGTGTACTC
                                                                                                                                                                                                                                          CATCGGAGCGGTGGACTGCGTACGTGTCTGCTTCCCCCGGAGGTTCGGTGACCGGGGCGCC
                                                                                                                                                                                                                                                                 YThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sProlleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACTGCGTCGTCGACCCGGCGCCGTACGCGGCCTATCTGCGGTTCGGTGACCTCGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aĻeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             eCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rLeuThrGlyLeuAlaValArgAlaPro---AlaGluProThrProAlaMetValPheGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGACTGCCGTTCGACTTCACCGGCGGTATGTGGGCTACTTCGGCTACGAGGTGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              oGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLysAl 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GCACCCCGCCTCGATGCCGTGGAGCCGTGGTCCGC------GACCGTACGAC 266621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPheAl 341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCAGCGTCTTCGACTACCTGAAACGGCAGTTGGTGACCCGTCAGGTGGAT---GCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACCAACGCGGCCAGGCTGCCCGGCCCCGTACGACCCCTACGACTTCTACCGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       417
                                           657
                                                                                265961
                                                                                                                       637
                                                                                                                                                              266021
                                                                                                                                                                                                                                          266081
                                                                                                                                                                                                                                                                                                                      266141
                                                                                                                                                                                                                                                                                                                                                                                                   266201
                                                                                                                                                                                                                                                                                                                                                                                                                                          557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           266381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      266501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               266261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   266897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               266957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 15
AP005217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                              gene
                                           rRNA
                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           657
                                                                                                                                                                                                                                                                                                                                                                                        Nakamura, Y., Ikeo, K., Suzuki, M. and Mashima, J. are at the National Institute of Genetics, Mishima, Shizuoka, 411-8540 Japan Itoh, T. is at the Japan Biological Information Research Center, Koto-ku, Tokyo, 135-0064 Japan Yamagishi, A. is at Tokyo University of Pharmacy and Life Science, Hachioji, Tokyo, 192-0392 Japan 192-0392 Japan Nishio, Y., Usuda, Y. and Sugimoço, S. are at the Ajinomoto Co., Nawasaki, Kanagawa, 210-8681 Japan Inc., Kawasaki, Kanagawa, 210-8681 Japan The other authors are at the National Institute of Technology and Evaluation, Shibuya-ku, Tokyo, 151-0066 Japan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (17-MAY-2002) Director'General of Biotechnology Center, National Institute of Technology, and Evaluation, Biotechnology Center; Nishihara 2-49-10, Shibuya-ku, Tokyo 151-0866, Japan (B-mail:bio@nite.go.jp, Tel:81-3;3481-1933, Fax:81-3-3481-8424) Kawarabayasi, Y is officially affiliated with the National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, 305-8566 Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 300750)
Kawarabayasi,Y., Yamazaki,J., Hino,Y., Kikuchi,H.
Director General of Biotechnology Center.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Corynebacterium efficiens YS-314
Corynebacterium efficiens YS-314
Bacteria; Actinobacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  efficiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Comparative complete genome sequence analysis of the amino acid replacements responsible for the thermostability of Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nishio, Y., Nakamura, Y., Sugimoto, S., Matsui, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gojobori,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AP005217 BA000035
AP005217.1 GI:23492722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AP005217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genome Res. 13 (7), 1572-1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Corynebacterineae; Corynebacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -CACCGCGACCGGATCGCCGGCCTGCGG 265816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGATCCGGTCGGCGAGTACGACGAGATGCTGCTGAAGACGGCCGCACCGATGCGCGCC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rAspGlnGluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           uAspGlySerAlaValAlaGlyAlaArg
                                       /gene="r
529. .19
                                                                                                                   /translation="mDQAPSGCLVDCVHGYIFYDTPVPMLLFPVGTSGNRKIVLDLFN
HYFWLNKPDRILTPLWSGCGCLFGWVIGLFTPWHTHVYVCVVFCGEFDPGSGRTLAAC
                                                                                                                                                    /codon_start=1
/trans1_table=11
/product=-hypothetical protein"
/protein_id="BAC17695.1"
/db_xref="GI:33492723"
                                                                                                LTHASRTMKPCLQGGLVANG"
/gene="rrnA_16S"
/product="16S ribosomal
                                                                                                                                                                                                                                                                                              db_xref="taxon:196164"
                                                                                                                                                                                                                                                                                                                  /mol_type="genomic DNA"
/strain="YS-314"
                                                                                                                                                                                                                                                                                                                                                         organism="Corynebacterium"
                                                                                                                                                                                                                                                           note="CE0885"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300750 bp DN
efficiens YS-314 DNA,
                                                         rrnA_16S"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kawarabayasi,Y., Usuda,Y., Yamagishi,A., Kikuchi,H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear BCT complete genome,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Corynebacterium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                           YS-314"
```

, Kimura, Ikeo,K.

,Ε.,

BCT

```
SdO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SdD
                                                                                                                                                           Sab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="15606. .!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TKKTSMII'NSPHNPTGSVFSKRSLEALAGIARAYDLLVLSDEVYEHLTFDKVSHTAV
ASLPCMMDRTITVSSAAKTFNOTGMKTGMALAPAPILEAVITAKQFMSYVGATPFQPA
VAHAVAHEKPWYKQMRKGLQNKRDILTDALTQAGLKYNBHGTYFVVADIGERDGAEF
CFDLIDRVGVAAIPVDKPEQWSSKVRFAFCKQEDTLREAAQRLRAAGSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5925. .7088
/note="CE0889, similar to AX063829-1|CAC25156.1| percentidentity: 79 in 387 aa"
                                                                                                                      EAHFYSVVSRDTLDTEYAAHRORFLAEQGYAYRIIDADDLLFPITEKET"
complement (9548 . .11851)
note="CE0892, similar to AE006976-11|AAK45126.1| ]
                                                                                                                                                                                                      GREGDVFSLIGPKRYDAPWKDLEAQGFIATADCVEVRTTMTDAERMYYATAETADRYR
LAATAHTKTRVVRRILEQHQGQPTLIIGAYLDQLEELGAEFDAFIVDGKTSNKKRGEL
FDRFRSGELNVLVVSKVANFSIDLPEAAVAIQVSGTFGSRQEEAQRLGRLLRPKADGG
                                                                                                                                                                                                                                                                                HPAHGLILESSEPAILVEISRHRKIKPMLGQQLDPETTAVHPSERGRLKQELLKIGWP
AEDLAGYUDGEAHPIALSTEVEDWSLADYQYAADS FWEGGSGVVVLPCGAGKTWVGA
AENARAQATTLILVTNIVAGROWKDELLRRTTITEDEIGEYSGERKEIRPUTIATYQV
VTRRTKGEYKALELFDSRDWGLIIYDEVHLLPAPVFRWTSDLQSRRRLGLTATLVRED
                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transT_table=11
/product="putative_DNA_helicase"
/protein_id="BAC17701.1"
/db_xref="G1:23492729"
/trans1ation="MAFBOGFLIVQSDKTVLLETGHDLAGEARAALAPFAELERAPEH
/translation="MAFAGHDAEQVVDVLERYSRFPVPQPLIVDVAETMSRYGRVRMHK
VHTYRITPLALMNARAAGHDAEQVVDVLERYSRFPVPQPLIVDVAETMSRYGRVRMHK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /trānslation="mTHFSFDVDEAYARKNNEFLRDTKRLQISAFFFGLVLLAIGGVL
YYLADGAVWGWMVLIVMGIMAALSFVMIPVLFRQVGSAESLYNTYFLVFAVVAEINFR
DVVLLALVNTNVDETLFPRWGLAVRTINRLGVHDRKLGERVFSVAVSGRRTIRDQDHW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (7180. .7821)
/note="CE0890"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="mrnkyvverlrpfgetifatmtqraneagainlgqgfpdedgpa
pmleiasqqilggnnqysggrgdlglrtavasdrhkrfkldydpdtevlitvgateai
sasvlglvepedevivlepyydayaaaialagatrvavplkeedntmyldtdavhaav
/trans1 table=11
/product="conserved hypothetical protein"
/protein_id="BAC17702.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="CE0891, similar to AL583924-93|CAC31112.1| percent
identity: 75 in 547 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(7822. .9495)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEISPMPITWGTTDADVVRRAEKTIPHDLWNKLEKNRNRLDEVKNTRMNLLVL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /trans_ table=11
/product="hypothetical protein"
/protein id="BAC17700.1"
/db_xref="GI:23492728"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transT table=11
/product="putative aminotransferase"
/protein id="BAC17699.1"
/bb_xref="GI:23492727"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5606. .5725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2399. .5481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2399.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            " NNPPHEHSPWWVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="hypothetical protein"
/protein_id="BAC17696.1"
/db_xref="G1:23492724"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (2042. .2215)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="CErRNA03"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="rrnA_5S"
/product="5S_ribosomal_RNA"
                                                                                                    dentity: 36 in 741 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="CErRNA02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene="rrnA_23S"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'gene="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 translation="MSSQTPNSMPPTYHHHLGDVFADPWVMIHPITTCWWQPHPGSNT/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             product="23S ribosomal RNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ="rrnA_5S"
.5725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .5481
                                                                            _start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rrnA_238"
                                                                                                                            AE006976-11 | AAK45126.1 | percent
                       Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                       Score:
                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGS
                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sg
                                                                                                                              No.:
1.6e-64
1541.00
60.71%
50.52%
43.13%
```

```
IPQLIKAGLLSKVDEQTVKLPGVVRRVLEGQEDTAWRVVPVEPSAVPGADDAGIAAGLEVARLORMLIDALSTARASTLKEGALGVRMVTRLTRELQVDEQOVARVVSLGYSSGLLRGVARLORMLIDALSTARASTLKEGALGVRMVTRLTRELQVDEQOVARVVSLGYSSGLLRGVAPDELPADDDGGDYIAPTEVADEWLQATLAEQLAHLMEWTQTYAMALVGEADE KNEPHHLLSPASRRDALPTEVANILGSLTRVGEEDLEADLFFHHPLAASRIPRETIRH LLEEARWIGAVAGGGVTSPARVLTQAPAGVIPEIADIAVAVRAPKPVDYFIVQADYTV MYPGFILOPEMOKIIGQLADLESPGLASVYRISBASLAHAMDLGLTATEIEDFITQHSATGLESPAYLLGAPALCYLRSDDPALLHSAVEAGALGFLDISRIRA VSNASLIEVTTALRKAGMQPVAEDALGASLDLARRAPRARVPAAROPEDASRIPA VSNASLIEVTTALRKAGMQPVAEDALGASLDLARRAPRARVPAAROPEDASRIPA AVAAIRREEVARTGTVSDQPTLAVLQAAVRGQRTVTLGFVDKQGVAVHRTVKPLTVNA QGVDALDESTGAVHRFMLHRITEVIVD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /translation="MPVGTVKWYDPERGFGFVSNPGGEDCFVGKQVLPKGVTELHQGQ RIEDDPAAGRKGPQALRVKVLETPRRRPQHTYKPEELNGIISDMVTMLEGTVQPALLK GHYPDRKVGEQVAKILRAVAKELEA" complement (13881. .14408) /note="CE0896"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13342 ...13725
/note="CE0895, similar to AE006977-4|AAK45135.1| percent
/dentity: 52 in 127 aa"
                                                                                          complement(14424. .15254)
/note="CE0897, similar to AE001874-1|AAF09704.1| percent /identity: 40 in 267 aa"
                                                                                                                                                                                                                                     /translation="masrktkrknfiQiatllvavvvvvvisvvfQnwwnnrfefefe
TVSITASS$AGEIEVFPYSICEPGVECAENEVPTLEVGADEELRLTIPEIIHDHDWYL
LTIYDD$AANDEFYHTSYETTEVTVPGSVDFVTEGGERPRLVVVEVTSVMIGTDDNGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="Mlfmgrhsaktatpfvkmaattvafgaaavafafaasaapdsdm
DRLANCESGGNWAINTGNGYHGGLQFSPSTWRAYGGDEFAPFAYQATREQQIAVAERT
LAGQGWGAWFACSSKLGLNSAPTFRNINPAPAFAFAFAFAFXRATVDTNTNPVVGSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="BAC17703.1"
/db xxef="G1:23492731"
/translation="WounANVEKKGYVDPAWPDHDPSEGHVVTELIAPYAGASSPWGD
DMEFPVPAETIGYVHPYTRINR"
complement (1222) . 118822)
/note="CB0894, similar to AX133781-1|CAC38957.1| percent
identity: 71 in 195 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11836. .12036
/note="CE0893, similar to AL583924-91|CAC31110.1| percent
identity: 50 in 62 aa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MPCFPF8QIRQTKVTSTAPKLGDIMKKDSPVPTLTGWLEQLDDD 
QLSGILNRFDTALPLEPGLGSLAARLQLRAS!QRAVHKLSALELAVLEAANAGGEL 
NPITAPEVVERHURALPLESAVPTBEQIGEALMRLRQLALVFGGERFILDETMATLS 
TNWQLLPEEHGRSLTFGEASQSIEALPARHRKILVTLVTSNGLGLTRDAALSADPARP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="putative colongly
/protein_id="BAC17705...
/db_xref="GI:23492733"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DLNTVQGIYDAVSGTLAQYGVQVPAEIQAHYNAFIGR"
                                                                                                                                                                                                     ETPYTTWSLATVEQ"
                                                                                                                                                                                                                                                                                                                                  /product="hypothetical protein"
/protein_id="BAC17706.1"
/db_xref="GI:23492734"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="conserved hypothetical protein"
/protein_id="BAC17704.1"
/db_xref="GI:23492732"
/transl_table=11
/product="putative
                                  /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="conserved hypothetical
/protein_id="BAC17703.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                       codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              db_xref="GI:23492730"
                                                                                                                                                                                                                                                                                                                                                                                                                                          _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _table=11
glutamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cold shock protein"
cyclotransferase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein"
```

Matches: Conservative: Mismatches: Indels:

342 69 206 13

360	AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp 	341	ફ
185796		185737	В
340	aGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe	321	ફ
320 185736	ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys	301 185683	음 성
185682	AGCTGTTCGACTGGCTGCGTGATGATCTGCGTCGCAACCGCGTGGCC	185635	B 3
00	CGGTTGGGGAGGGG	185617	}
280	${\tt ValSerValArgGlySerAspGlyThrThrThrArgThr}$	N	Ş
260 185616	GLYALASERATGPHESERPHELEUGLYASDASDATGGLYPTOLEUALAGLUTYTLEUTHT	185566	용 성
00	GCTCTTCGCCGGGTCGGAGCACGCGTTCTGGCTCGATGATCCGCAG	هيو	В
240	gGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu	221	Ś
00 8	TGGGAGATCACCGAGCATGTGGTGGAGACAAGCGTCGACCCGGCGGCGGTGTTC	σ .	용 :
220	ArqArqValAspValLeuProAspAlaGluGluValArq	201	Ś
185460		185419	망
200	pLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp	181	ફ
180 185418	ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle	161 185359	음 경
185358	TIGAGGTCACCGCGAGGACCGGGCTGATCATGGCGCTGCGCCACCGCGAGCTG	185299	B
160	»LeuAlaTrpSerAврAврGlyValValMetGlyLeuArgHisArgGluLyв	141	ફ
œ i		185239	₽ .
140	erProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu	121	ફ
120 185238	ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu	101 185179	용 성
185178	TGCCTGGGGCATCAGGGCATCGCGCTCGCCCACGGCGGCGGTGGGCCCGGCCGG	185119	B 4
œ	TCGAACGTGGTCTGGTCCCGGGGTG	185059	9
	rgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal	6	ર્
185058	GACGAGACGCTGTTCGACGCCGTCATCATCTCACCCGGCCCACCCA	184999	B 3
,	Circuit.	;	?
40 184998	G1yG1uA1aThrG1yG1nProProVa1Va1Va1ProAsnAspA1aAspTrpSerArgLeu	21 184948	음
184947	TCGCCACGTATGTG	184888	B
20		1	8
	-2 (1-686) x AP005217 (1-300750)	10-089-514	-Sn

186738	88 0	1866	문
677	61 GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeu 6	6	Ş
ACCCCGCC 186687	28	1866	D D
врGlnGlu 660	41 AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu	6	Ş
:: TGGTCTAC 186627		1865	뮍
leValLeu 640	21	6	δ
GTGGCCTG 186567		1865	뮍
lyAlaLeu 620	601 ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGl	6	Ş
AGATCCGC 186507	448 ATTGACTGCGTGCGGCGGTTCCCCGGTGGTTCCATGACCGGTGCACCGAAGATCCGC	1864	뮍
ysLysArg 600	81	ر د	8
-GGTAAGGACCCC 186447	391 GCCACCGTCCACCAGCTCGTCAGCACCATTÁCCGCCCAGCTGGAGGGTAAGGA	1863	뫄
hrSerThr 580	61	5	ઇ
AGACCTAC 186390	31	1863	뫄
luThrTyr 560	41 AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr	_ل ى	δ
 ATGATCTC 186330	771 GACAACCCCAAGGACCGCCGAGAACCTCATGATCGTCGACCTGGTCCGCAATGATCTC	1862	당
snAspLeu 540	21	U)	Ş
ATCTCACC 186270	!11 GGCACCCGCCGCGGGCAGTACCGAGCAGGAGGATGCGGCCTTGATCGCCGATCTCAC	1862	망
spLeuAla 520	21	5	Ś
CCATCAAG 186210		1861	Дb
rolleLys 500	81	4	Ş
TGAGCTCG 186150)91 GCCAACCCCACCTCCTATGGATCATTCCTGCAGCTGGGGGAGATGGCGGTGCTGAGCTCG	1860	DЬ
euSerAla 480	61	4.	Ş
TGCGGGCG 186090)31 ACCCAGCTGCGCGGAGGTGGAGGTGGATCCCCTCGCCGCCTATCTGGCGCTGCGGGCG	1860	망
euArgAla 460	41	4.	Ş
GCCTGACC 186030)71 ATGATCGCCCGCGCCCAGGAGTTGATCACCCGCGGGAGTCCTATGAGATCTGCCTGAC	1859	Дb
ysLeuThr 440	21	4	8
ACCTGGAC 185970	11	1859	뮍
YrLeuLys 420	01 AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys		Qy
CCCCGT 185910	993 CAGCTG	1858	문
leProGlu 400	881 GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIle	ω	γQ
 CCCTGGGG 185892		1858	문
hrLeuThr 380	13	₃	Ş
CECICEGI IBSBS0	/97 GCCGACCGGGCCATCGCCATCGAACCCGGCCGCGTGTGGCTCATGGCGCTCGGT	185797	מט

This Page Blank (uspto)

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -MODEL=frame+ p2n.model -DEV=xlh
-Q=/cgn2 1/USPTO_spool_h/US10089514/runat_04102005_105743_8027/app_query.fasta_1.1621
-Q=/cgn2 1/USPTO_spool_h/US10089514/runat_04102005_105743_8027/app_query.fasta_1.1621
-DB=N_Geneseq -QFMT=fastap -SUFFIX=rng -MINWATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS=bite -START=1 -END=-1 -MATRIX=blosum62 -TFRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFWT=pto -NORM=ext -HEAPSIZE=500 -MINLEN0 -NAXLEN2200000000
-USER=US10089514_GCGN 1 1860_@runat_04102005_105743_8027 -NCPU=6 -ICPU=3
-NO_MMAD -LARGEQUERY -NEG_SCORES=0 -WALT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Command line parameters:
-MODEL=frame+_p2n.model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
        3573
3573
3127.5
3127.5
3127.5
                                                                                                                                                                         Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-2
3573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
           100.0
100.0
87.5
87.5
                                                                                                                                                                         Matich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              October 4, 2005, 21:38:23; Search time 1204.67 Seconds (without alignments) 3371.006 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BLOSUM62
                                                                                                                                                                                                      Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4390206 seqs, 2959870667 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MRTLLIDNYDSFTHNLFQYI......VVKARAMVTALDGSAVAGAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                geneseqn2001as:*
geneseqn2001bs:*
geneseqn2002as:*
geneseqn2002bs:*
geneseqn2003as:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    geneseqn1980s:*
geneseqn1990s:*
geneseqn2000s:*
                                                                                                                                                                                                                                                                                                                                                                                                                     geneseqn2003cs:*
geneseqn2003ds:*
geneseqn2004as:*
geneseqn2004bs:*
                                                                                                                                                                       Length
                               2061
2061
3305
12391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.6 (c) 1993 - 2005 Compugen
                                                                                                                                                                         DB
        AAF86409
AAL50180
ABZ69799
ABZ69798
AAH66076
                                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.5
7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ltd
Aaf86409 4-amino-4
Aal50180 S venezue
Abz69799 Plasmid p
Abz69798 Plasmid p
Aah66076 C glutami
                                                                                                                                                                       Description
  RESULT 1
ARRESULT 1
ARRESULT 2
ARRESULT 2
ARRESULT 2
ARRESULT 4
ARRESULT 4
ARRESULT 4
ARRESULT 1
AR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-SEP-2000; 2000WO-JP006783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAF86409;
                                                         29-SEP-1999;
  (MEIJ ) MEIJI SEIKA KAISHA LTD
                                                                                                                                                                                                                          WO200123542-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         223.3
223.3
220.3
220.3
118.4
117.4
117.4
116.2
116.2
116.2
116.2
116.2
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
116.3
                                                         99JP-00276314.
```

```
Metabolite; benzene; chorismic acid; p-áminophenylpyruvic acid; 4-amino-4-deoxychorismic acid synthase; enzyme; papA; ds.
                                                                                                   Streptomyces venezuelae
                                                                                                                                                                                          4-amino-4-deoxychorismic acid synthase, papA, coding sequence.
                                                                                                                                                                                                                                                                                                           AAF86409 standard; DNA; 2061 BP.
                                                                                                                                                                                                                               22-JUN-2001 (first entry)
/*tag= a
/product= "4-amino-4-deoxychorismic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1100
110000
110000
110000
                                            .2061
                                                                                                                                                                                                                                                                                                                                                                                                                                           10
12
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . ABD14809
AA199682 17
AA199687 18
AA199683 17
AA199683 17
ACA53954
ACA4234
ACA31740
1 ABD02207
ACA51013
ACA51013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAF72103
AAF71982
0 ADD134587
0 ACF67367_49
0 ACF65387_1
0 ACF71773
ADB06077
ADB12064_00
0 ADB95077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABA90521 13
ABQ67196_3
ABQ69245_28
ABQ69245_29
ABA03041_28
AAT59268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADN36903
ADN36893
AAS59535
ACF64464
AAT58553
ACA29955
ACA29107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAS59683
ACF64612
                                                                                                                                                                                                                                                                                                                                                                                    ALIGNMENTS
         acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Aaf71982 Corynebac Aaf71982 Corynebac Add13458 C. glutami Continuation (50 o Continuation (20 of Acf71773 Photorhab Adb95077 A. Iloiococ Adb12064 Alloiococ Adb512064 Alloiococ Adb55077 A. Thalia Adn3693 X. albili Aas59535 Propionib Acf64464 Propionib Acf64464 Propionib Acf8553 Streptomy Aca29955 Prokaryot Aca29107 Prokaryot Aca29107 Prokaryot Aca29107 Prokaryot Aca29107 Prokaryot Aca42265 Prokaryot Abd14809 Pseudomon Aca53211 Prokaryot Abd14809 Pseudomon Aca53211 Prokaryot Abd14809 Pseudomon Continuation (18 o Continuati
         synthase'
                                                                                                                                                                                                                                                                                                                                                                                                                                         Prokaryot
```

540 180

```
Best Local Similarity: Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-2 (1-686) x AAF86409 (1-2061)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present invention relates to a transformant having been modified so CC as to produce a secondary metabolite. The secondary metabolite has a CC benzene ring skeleton free from substitution at the para-position by a CC nitrogen-containing functional group, thereby enabling the production of a secondary metabolite with a benzene ring skeleton substituted at the CC para-position by a nitrogen-containing group. The transformant organism CC of the present invention has been produced by transferring a gene participating in the biosynthesis pathway from chorismic acid into pantinophenylpyruvic acid. The present sequence is the coding sequence for 4-aminophenylmyic acid synthase (papA), from Streptomyces codid into p-aminophenylpyruvic acid, and so the papA gene can be used to produce the transformant of the present invention. The transformant can be used to produce metabolites for application in pharmaceuticals, covered to produce metabolites for application in pharmaceuticals.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yanai K,
Murakami
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Transformant producing secondary metabolite modified with functional group e.g. benzene with nitrogen-containing substituent at para-position, PF1022, with ease at low cost, for application in pharmaceuticals and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2001-290517/30.
DB; AAB82071.
                                                                       361
                                                                                                                                                 301
 421
                                  141
                                                                                                            121
                                                                                                                                                                                   101
                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11; Page 54-59;
                                                                                                                                                                                                                                                             81
                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                41
                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21
                                                                                                                                                                                                                                                                                                                                                                                                 ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                   LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                  ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                             CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                                                                                                                                                                                                                                                     ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                  CGGGACTTCGGAATCAGCCGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Okakura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ㅈ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.65e-245
3573.00
100.00%
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yasuda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ß
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Watanabe M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ŧ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Miyamoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2061
686
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Midoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        z
                                                                                                                                                                                   120
480
                                  160
                                                                       420
                                                                                                                                                 360
                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                             100
                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                          Ś
                                                                                         문
                                                                                                                    S
                                                                                                                                                              망
                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                            1321
                                                                                                                                                                                                                                                                                                                     1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1021
                                                                                                                                                                                                                                                                                                                                                                                               1201
                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            341
                                                                                                                                                                                                                                                                                441
                                                                                                                                                                                                                                                                                                                                                                                                                                 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                      GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCTGTGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                   GGGACCCGCCCCGGGGCGCACCGCGGAGGAGGACGAGCGGCTCCGCGCCGACCTGGCC
                                                                                                              SerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLys
                                                                                                                                                                  ATCAGCCCCGTCCCGTACGGCGCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCC
                                                                                                                                                                                       IleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAla
                                                                                                                                                                                                                                            AACATGGTCACCGCGGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCGCTGCGCGCC
                                                                                                                                                                                                                                                               AsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAla
                                                                                                                                                                                                                                                                                                                       CGCATCGA
                                                                                                                                                                                                                                                                                                                                        ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr
                                                                                                                                                                                                                                                                                                                                                                                               GCGGCGGCCGGCTTCGGCCCCTGGCCCGCGCGCGCACAAGGACGCCTACCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                      AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCCTGGCCGTCCGCGCCCCGGCCGAGCCGACCCCGCCATGGTCTTCGGGATCCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCGGGGCCACGACGGCGCGCCCCGCGCTGGCTGCGGGAGACGGCCGAGACCCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGACCGCGCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGAGACCACCGGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGAACTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCGCCTCGCGCTTCTCCTTCGGCGACGACCGCGGCCCGCTCGCCGAGTACCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCGGCTGCCTGGCGGGGAGGGCACCACGTTCTGGCTGGACAGCAGCTCCGTCCTCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCCCGTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAGGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGGCCAACTTCCGCGACCTCGCCCCACCACCGGCCACGGCGCCACGGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                                                                                                                                       CGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCGACGGCGTCGTCCGTCCGCGGCTCCGACGGCACCACGACCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCCGCGCACCGGTCCCCGCACCCCGACGCCGCGTTCCTTC
                                                                                          CCAAGCCCATCAAG
```

1140

1200 400 1080

360

340

320

960

300

840

780 260 720 240 660 220 600

밁

520

1500

500

480

1380 460 440 1260

1440

Ş 망

밁 5 Ş 밁 Ś 밁 Ś 문 Ś 밁 Ś 밁 Ś

```
ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                   र्
                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                              Substance PF1022; biosynthesis; transgenic; chorismic acid; anthelmintic; phenylalanine; p-aminophenylpyruvic acid; pharmaceutical; veterinary drug; gene; ds.
                                                                                                                                                                                                                                                                    S venezuelae PF1022 substance
                                                                                                                                                                                                            Streptomyces
                                                                                                                                                                                                                                                                                                                             AAL50180
 Novel
                    P-PSDB; AA019563.
                                                                                    22-MAR-2001; 2001JP-00082227.
                                                                                                                                           WO200277244-A1
                                                                                                                                                                                                                                                                                        28-JAN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                            1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1561
                                                                                                                                                                                                                                                                                                                                                                  2041
                                                                                                                                                                                                                                                                                                                                                                                                      1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1681
                            2003-018934/01
                                                                                                                                                                                                                                                                                                                                                                                                                         199
                                                                                                                                                                                                                                                                                                                                                                                                                                                             641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             521
                                                                                                                                                                                                                                                                                                                                                                                   681
 biosynthesis
                                               ~
                                                                                                       -2002;
                                                                  MEIJI SEIKA
                                                                                                                                                                                                                                                                                                                                                                                                    standard;
                                                                                                                                                                                                                                                                                                                                                                             AlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                                                                                                                                                                                                                                                                GCCGTGGCGGGCGCCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGACGGCCAGGCGGAGTTCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGATGGTTCGCCCTCAGCGGCGCCGGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCGCTCCATGACCGGCGCGCCCAAGAAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGCCCGTGCACCAGCTGGTCTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu
                                               Sumida
                                                                                                                                                                                                             venezuelae.
                                                                                                       2002WO-JP002782
                                                                                                                                                                                                                                                                                       (first
                                             z
                                                                                                                                                                       /*tag=
                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                              /product=
gene-transferred transformants
                                                                                                                                                                                                                                                                                                                             DNA;
                                                                                                                                                                                .2061
                                                                  KAISHA LTD
                                               Watanabe
                                                                                                                                                                                                                                                                                                                             2061
                                                                                                                                                             "PF1022 substance"
                                                                                                                                                                                                                                                                                                                                                                2058
                                                                                                                                                                                                                                                                                                                                                                                   686
                                                                                                                                                                                                                                                                                                                             ВÞ
                                           3
                                                                                                                                                                                                                                                                   gene
                                               Moriya
                                                                                                                                                                                                                                                                    世
                                               Ή
                                               Murakami
for
                                               ij
producing PF1022
                                                                                                                                                                                                                                                                                                                                                                                                      2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1620
                                                                                                                                                                                                                                                                                                                                                                                                                                           1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        620
                                                                                                                                                                                                                                                                                                                                                                                                                        680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  580
```

```
Query
DB:
                                                             S
                                                                                           8
                                                                                                             S
                                                                                                                                             멍
                                                                                                                                                                  S
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-089-514-2 (1-686) x AAL50180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present invention relates to transformants capable of producing PF1022 substance derivatives. These were obtained by transferring a gen participating in the biosynthesis pathway from chorismic acid to paminophenylpyruvic acid (biosynthesis gene) into a phenylalanine requiring host derived from an organism producing the PF1022 substance. The transformants are producing PF1022 substance derivatives by fermentation, for use as pharmaceuticals or veterinary drugs. The prese sequence is a substance PF1022 coding sequence from Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            substance derivatives by fermentation, drugs with anthelmintic activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.:
               221
                                         601
                                                                                             541
                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                              301
                                                                 201
                                                                                                                      181
                                                                                                                                                481
                                                                                                                                                                         161
                                                                                                                                                                                                                             141
                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                        101
                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13;
                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -
ArgG1yCysLeuProG1yG1uG1yThrThrPheTrpLeuAspSerSerSerVa1LeuG1u
                                                                                              ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGCGCCACGGGGCCGAC
                                                                                                           MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                CCGCTGTGGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                                                                              ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                    CTCGAACCCCTCGCCTGGAGCGACGACGGGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                                                                                  LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                         CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAG
                                                                                                                                                                                                                                                                         ProSerProPheThrAlaValArgTyrHis$erLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                              CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                           ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                TGCCTCGGCCACCAGGCATCGCCCAGCTCTTCGGCGGAACCGTCGGCCTCGGCCCCGGAA
                                                                                                                                                                                                                                                                                                                                                                                  CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                   ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProValGluAspPheAspAlaIleValVal$erProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCGAGGCCACCGGGCAACCCCCCGTCGTCGTCGCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCCACAACCTGTTCCAGTACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCCGACCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 74-79; 116pp; Japanese.
                                        4.65e-245
3573.00
100.00%
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       297 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-2061)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   as pharmaceuticals or veterinary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2061
686
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                             600
               240
                                         660
                                                                  220
                                                                                                                      200
                                                                                                                                                540
                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                               80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40
                                                                                                                                                                           180
                                                                                                                                                                                                                              160
                                                                                                                                                                                                                                                                                   140
                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20
```

```
1681
                                                                                                                                        1621
                                                                                                                                                                                                              1561
                                                                                                                                                                                                                                                                                   1501
                                                                                                                                                                                                                                                                                                                                                     1441
                                                                                                                                                                                                                                                                                                                                                                                                                            1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1021
                                                                                                      561
                                                                                                                                                                           541
                                                                                                                                                                                                                                               521
                                                                                                                                                                                                                                                                                                                    501
                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                             461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu
                                                                                                                                                                                                                                                                                                                                                   AsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGACCGCCATCGCCCTCGACCACCAGGAAGGCTGCTACCTGCTGGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                  AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                                                                     AlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThr
                                                                                                                                                           AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                                                                                                                                                                                                       GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                          ATCAGCCCCGTCCCGTACGGCGCCCCTGCTCGAGTTCCCCGAACTGTCGGTGCTGAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                           IleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCCTGGCCGTCCGCGCCCGGCCGAGCCCGACCCCCGCCATGGTCTTCGGGATCCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
GCCGCCTGCGTACGCGCCCTTCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGC
                                                                   GCGCCCGTGCACCAGCTGGTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                        AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCCGGCTCTTCGAGGTGGAGACCTAC
                                                                                                                                                                                                              GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                 CGCATCGACGAGTGCCTCAAGGAGATCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGCGGCCGGCTTCGGCCCCTGGCCCGCGCGCGCACGACAAGGACGCCTACCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGGGGCCACGACGACGCGCCCGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCGCCCCTTCTTCAACTACCTGGAGGAGCAGCTCGAACGCCGACGGGTCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          400
                                                                   1740
                                                                                                                                        1680
                                                                                                                                                                                                              1620
                                                                                                                                                                                                                                                                                 1560
                                                                                                                                                                                                                                                                                                                                                     1500
                                                                                                                                                                                                                                                                                                                                                                                                                        1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1020
                               600
                                                                                                                                                                                                                                                                                                                  520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
```

8 밁 Ş 밁

Ś 밁 Ś 밁 Ś B Ś В Ś 밁

밁 S 밁 δ 밁 δÃ В

1800

Ś

밁

5

밁 Ş 밁 8 В Ş 멍 δ 밁 Ś 밁 Ś 멍

```
RESULT 3
ABZ69799
ID ABZZ
XX ABZ6
AC ABZ6
XX DT 08-J
XX DHFF
XX DHFF
XX OHLFF
XX OHLF
XX OHLF
XX OHLFF
XX OHLF
XX OHLF
XX OHLF
XX OHLF
XX OHLF
XX O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-tRNA with at least one unnatural amino acid in the translation system and the O-tRNA recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the AsplZTAG mutant of chloramphenical acetyltransferase (CAT), the Tyr163TAG mutant of mouse dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse dihydrofolate reductase comprising CHOOH His6tag. The unnatural amino acid is biosynthesised by the cell. The present sequence represents a plasmid containing the individual genes papABC that encode
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Composition useful for producing protein comprising unnatural amino acid, has translation system comprising orthogonal tRNA and orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase; ds; plasmid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19-APR-2001; 2001US-0285030P
06-FEB-2002; 2002US-0355514P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Plasmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABZ69799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             biosynthesis; p-aminophenylalanine; pAF; chorismate.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABZ69799 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (SCRI ) SCRIPPS RES INST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          translation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EL,
                                                                                                                                                                                                                                                                                                                                                                                                                               4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 papABC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGTGGCGGGCGCCCGA 2058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGGAGTTCACCGAGACCGTGGTAAAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Wang L, 1, Mehl RA,
                                                                                                                                                                                                                                                                                                                                                                                                                               Page 127-128; 188pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Anderson JC,
A, Pastrnak M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chin JWK, L. Santoro SW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Liu DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Magliery Z;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   640
```

26 28 28 30	201 SerProTyrGluLeuHisValArgArgValAsgValLeuProAsgAlaGluGluValArg 22	Qy 161 ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle 180	121 ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu 14	Oy 81 CysLeuGlyHisGlnGlyIleAlacInLeuPheGlyGlyThrValGlyLeuAlaProGlu 100	118 CCC 61 Arc 178 CGC	TGATGACAACTACGACTCGTTCACCAGAACCTGTTCCAGTACATC 6 LYGLnProProValValValProAsnAspAlaspTrpSerArgLeu 4	<pre>v Match: 87.53% Indels:</pre>	Alignment Scores: 4.38e-213 Length: 3305 Pred. No.: 3127.50 Matches: 618 Percent Similarity: 91.40% Conservative: 9 Best Local Similarity: 90.09% Mismatches: 42	CC the enzymes used to carry out the conversion of chorismate to the CC unnatural amino acid p-aminophenylalanine (pAF) XX Sequence 3305 BP; 445 A; 1327 C; 1121 G; 412 T; 0 U; 0 Other;
	D Q D Q	20 QV	Q Q Db	5 B 50 B	& & & & &	Q B Q 5	}	Qy Db	
601 ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu 620	561 1630 581 1690	521 GlyArgGluLygAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu 540	1390 TCGCCCGAGCGGTTCCTCACGATCGGCGCGACGACGGCGTCCGCCCCGACCTGGCC 1509	1270 AACATGGTCACCGGCCCGACCGACGGCCTGCCGCCTGCCGCTTACTCCGCGCTGCGCCCCCCCC	1177 421 1228 441	1937 CGCCGGGGCCACGACGGCCCGGCCCGGCCTGGCTGGCGGGGAGACGGG 381 GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValP 1117 GGCCTGGCCGTCCGGCTCCGGCCGAGGCCGACCCCGCCATGGTCT 1117 GGCCTGGCCGTCCGGGTCCGGCCGAGGCCGACCCCGCCATGGTCT 401 AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLySA	341 AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp	321 AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe 34 	817 GCGGCGACCCTCTTCAGCTACCTGGAGGAGCAGCTCGAACCGCCGGCGGGTCCCGTCGCC 876 301 ProGluLeuProPheGluPheAsnLeuGly†yrValGlyTyrLeuGlyTyrGluLeuLys 320

```
Best Local
Query Match
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                        Percent Similarity:
                                                                                                                                                               and the O-tRNA recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the Asp12TAG mutant of chloramphenical acetyltransferase (CAT), the Tyr163TAG mutant of mouse dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse dihydrofolate reductase comprising CHOOH His6tag. The unnatural amino acid is provided exogenously. The translation system is a cell and the unnatural amino acid is biosynthesised by the cell. The present sequence represents a plasmid for use in the biosynthesis of p-aminophenylalanine
                                                                                                                                                                                                                                                                                                 The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-tRNA with at least one unnatural amino acid in the translation system
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS; orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase; diosynthesis; p-aminophenylalanine; pAF.
                                                                                                                                                                                                                                                                                                                                                                                                                Composition useful for producing protein comprising unnatural amino has translation system comprising orthogonal tRNA and orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-APR-2001;
06-FEB-2002;
                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                          Example 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2003-120430/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200285923-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ABZ69798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                          Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EĽ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SCRIPPS RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         plasc-papabc
                                                                                                                            12391
                                                                                                                                                         νίνο
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGGAGTTCAGGCAGACCGTGGTCAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAGTGGCGGGCGCCCGA
                                                                                                                                                                                                                                                                                                                                                                                                      tRNA synthetase
                                                                                                                                                                                                                                                                                                                                                                        Page 124-127; 188pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Wang I
Mehl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001US-0285030P
2002US-0355514P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2002WO-US012465
                                                                                                                            BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              J L,
RA,
                          2.06e-212
3127.50
91.40%
90.09%
87.53%
                                                                                                                             2830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA; 12391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Anderson JC,
, Pastrnak M,
                                                                                                                             Ą
                                                                                                                             3588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2007
                                                                                                                            Ç
             Mismatches:
Indels:
Gaps:
                                                      Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chin JWK, Li
                                                                                                                             ç,
                                                                                                                             2627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Liu
          12391
618
9
42
17
                                                                                                                            Ή,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Magliery
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŢJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  plasmid;
                                                                                                                                                                                                                                                                                                                                                                                                                                acid,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       680
                   Ş
                                                     밁
                                                                              Ś
                                                                                                              밁
                                                                                                                                  Ş
                                                                                                                                                                    밁
                                                                                                                                                                                             Š
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-2 (1-686) x ABZ69798 (1-12391)
1020
                                                                                  321
                                                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                      241 GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                                                                                                                                                                                                                                       221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCAGAACCTGTTCCAGTACATC
                                                                                                                                ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                            ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                   SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GÉCGAGECCACCEGECAGCCCCCC---GTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
GCCGACCGCCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGAC
                AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp
                                                                     AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                              CCCGACCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                    ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                            TACCGCGTCGCCGACGGCGTCGTCCGTCCGCGGCTCCGACGCACCACGACCCGGGAC
                                                                                                                                                                                                                                           TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                                                                                                                                                                                                                                                                                                                                            TGGGGCTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAGGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGTCGCGACGCGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCTGATGGGCGTCCAGTTCCCACCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCGAACCCCTCGCCTGGAGCGACGACGGCGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCCACCGACCTCCCCGACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCCTCGAGGACTTCGACGCGATCGTCGTGTCCCCGGGCCCCGGCAGCCCGGACCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGGACTTCGGGATCAGCCGGCCGGGCGATCACCGACAGCGGCCTGCCCGTCCTCGGCGTC
                                                      CCCCTTCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCTCGGCGGAA
                                                      1019
                                                                                  340
                                                                                                              959
                                                                                                                                          320
                                                                                                                                                                       899
                                                                                                                                                                                                                             839
                                                                                                                                                                                                                                                                                                                                                                                                                                                           599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83
                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                    659
                                                                                                                                                                                                                                                                                                                                                                                                                                220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
```

```
RESULT 5
AAH66076
ID AAH6
XX
                 AAH66076
                                                                                                                                                1953
                                                                                                                                                                                                                  1893
                                                                                                                                                                                                                                                                                 1833
                                                                                                                                                                                                                                                                                                                                                                                                                      1713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1080
                                                                                                                 681
                                                                                                                                                                                 661
                                                                                                                                                                                                                                                  641
                                                                                                                                                                                                                                                                                                                  621
                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                     581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                     GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySer
                                                                                                                                                                                                                                                                                                   GlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIleValLeu
                                                                                                                                                                                                                                                                                                                                                                    ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | IleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                 standard;
                                                                                                   AlaValAlaGlyAlaArg
                                                                                                                                             GAGGAGTTCAGGCAGACCGTGGTCAAGGCCCGCGCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                   AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                 CCCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCGTCTTACCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGCCTGCGTACGCGCCCTTCCCCCGGCGGCTCCATGACCGGCGCCCCAAGAAGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCCCGTGCACCAGCTGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCTGGCCGTCCGCGTCCGGCCAAGGCCGACCCCCCCCATGGTCTTCGGGGTCCCCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCCGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGACCCGCCCCGGGGCGCACCGGCGGAGGAGGACGACCGCCCCGCCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCAGCCCGTCCGGCGCGCCCTGCTCGAGTTCCCCGAGCTGTCGGTGCTCAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AACATGGTCACCGCGGGCGACCGACGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr
                 DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----TCGGCGCTCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGATCGGCTCCGCGTGCCCCGGCTCTTCGAGGTGGGAGACCTC
                 1860
                                                                                                               686
                 ΒP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1652
                                                                                                                                                2012
                                                                                                                                                                                                                                                                                                                                                                                                                   1772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           400
                                                                                                                                                                                                                1952
                                                                                                                                                                                                                                               660
                                                                                                                                                                                                                                                                                1892
                                                                                                                                                                                                                                                                                                                                                 1832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          460
                                                                                                                                                                                                                                                                                                                                                                                620
                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                          á
                             문
                                                                                             밁
                                                                                                                      S
                                                                                                                                                            맑
                                                                                                                                                                                          S
```

S

밁 δ 밁 Ś 밁 á В δ 밁 Ś 밁 ঠ 밁 S 밁 Ś

5 밁

S

र् 밁

13

ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal

80

120

60

S 밁 ঠ

밁

Ś

밁 र् 밁

В S 밁

```
Query Match:
DB:
                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similari
                                                                                                                                                                              US-10-089-514-2 (1-686) x AAH66076 (1-1860)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-DEC-1999;
07-APR-2000;
03-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                            The present invention provides a number of nucleotide and protein sequences from the Coryneform bacterium Corynebacterium glutamicum. These are useful for identifying the mutation point of a gene derived from a mutant of coryneform bacterium, measuring expression amount and analysing the expression profile or expression pattern of a gene derived from coryneform bacterium, and identifying a homologue of a gene derived from coryneform bacterium. Coryneform bacteria are useful for producing amino acids, nucleic acids, vitamins, saccharides and organic acids, particularly L-lysine. The present sequence is a nucleic acid described in the exemplification of the invention. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from the Buropean Patent Office
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Novel polynucleotides derived from Coryneform bacteria, for identifying mutation point of a gene, measuring expression of a gene, analyzing expression profile or pattern of a gene and identifying homologous gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Novel
                                                                                                                                                                                                                                                                                       No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nakagawa S,
Tateishi N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Coryneform bacterium; amino organic acid synthesis; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18-DEC-2000; 2000EP-00127688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20-JUN-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (КУОМ ) КУОМА НАККО КОСУО
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2001-376931/40.
DB; AAG90857.
   121
                                                                                                                                                                                                                                           Similarity:
                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8; SEQ ID NO 1111; 246pp + Sequence Listing; English
                                                                         GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                    MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                           GAAGAGGTTACGGGTCAGGCACCTGTGGTGGTGCCTAATGATCAAGAAATAGATGAGATG
                 ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                   ATGCGCGTTTTAATTATTGATAATTATGATATTCTTCACGTTTAATCTCGCCACCTATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99JP-00377484
2000JP-00159162
2000JP-00280988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mizoguchi H,
Senoh A, Ik
                                                                                                                                                                                                                                                                                                                                   BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                glutamicum
                                                                                                                                                                                                            1.61e-96
1487.00
60.06%
48.52%
41.62%
                                                                                                                                                                                                                                                                                                                                 394 A; 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entry)
TTCGACGCCGTCATCCTCTCACCTGGCCCGGGCCACGCCGGCGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  H, Ando S, Hayashi M,
Ikeda M, Ozaki A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 즛
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acid
                                                                                                                                                                                                                                                                                                                                 ς:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fragment
                                                                                                                                                                                                                                                                                                                                   516
                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            synthesis;
                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ
                                                                                                                                                                                                                                                                                                                                 472 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             vitamin; saccharide,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š.
                                                                                                                                                                                                            1860
328
78
204
66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ochiai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yokoi
                               60
                                                                                       40
```

```
Ş
                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Дb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                      á
                                                            밁
                                                                                            S
                                                                                                                                         밁
                                                                                                                                                                         δ
                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                        419
                                                                                                                                                                               381
                                                                                                                                                                                                                     955
                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                  904
                                                                                                                                                                                                                                                                                                                                  341
                                                                                                                                                                                                                                                                                                                                                                           844
                                                                                                                                                                                                                                                                                                                                                                                                                 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                       790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                            GluAlaAlaGlyPheGlyProLeuAla---ArgAlaArgHisAspLysAspAlaTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
LeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCys
                                                                                                                                                                       GlyLeu---AlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
                                                                                                                                                                                                                                                      ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                      AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp
||||||||||||||||||||
                                                                                                                                                                                                                                                                                                                                                                             GCGGAAGCTGGCGCACGGGCTGCGCACACTTCGAGTCTTCCGGATGCGCACCTCATTTTT
                                                                                                                                                                                                                                                                                                                                                                                                               AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GATTTCTCACCTGGCTAAAGGAGGATCTCGCCGAAC-----TCAGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATAATGTCGGCGAGGGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAAACATTCTTTGCCCATTCCTCCCATGCTTTTTGGCTCGATGAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTGAAAGCTACAĞCTACCAĞCĞATĞATĞĞTTTGATCATĞGCATTĞGCACATGAAGTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTGAAACGTTTGAGGCGGTGCGTTATCACTCGATGGTGGCAACCCGCTTGCCGGAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGTTTAGGCCACCAGGGCATTGCGTTGGCCTATGGCGGTGATGTTGATTTTGGCGCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTGATTTTGGTATCTGTGCAGGCGTCATTGAGCGTGCACGCGTTCCGATTTTGGGTGTG
                                                                                                                                                                                                                                                                                                GCCGATCGCCATCGCAGTGGAATCGGATCAG----GTTCGGTTGCTGGCGTTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCGGTCAA-----GGTTTTCGTCTTGGCTGGGTTACGTTGGTTATGAGCTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTAAGAACTTCCTTAATTTAGCGCGCACATATCGC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCAGTGGGGTGTGCAATTTCATCCGGAATCTATTGGTGGACAATTCGGCCCATCAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGGTCCACGGTGAGGTTTCGCAGATCACCCATGATGGTTCAGGTTTATTTGCAGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -ĠĠĠĠĀĠĊĀĠĀĊ-----GĀĠŦĠĠŦŦŦĠĀĀĀĠĀĀĀĊĊĀŦĊĀĀĠĀĀĠĊŦĠĊĀŦ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGCAACTCACGGAGAAAACTATTCCGCTCAGCGTTGATTCAGCAGCGGTTTTT
                                                            GGACACCTCGCTTTGCAGGTTCGAGATTCCAAAGATGAGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100
                                                                                                                                                                                                                                                                                                                                                                                                                                                     843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                954
                                                                                                                                                                                                                                                                                                                                                                         903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 231
RESULT 6
AAF72103
ID AAF7
XX COry
DE Cory
XX Cory
DO C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
  23-JUN-2000; 2000WO-IB000923
                                                                                                                                                                                                                                                                                                                  30-APR-2001
                                                                                                                                                                                                                                                                                                                                                        AAF72103;
                                                                              WO200100843-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                459
```

```
1072 CTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGCGAATCGTATGAAATCTGC
CCGGAGGCTGAGTGGGAGGAAATCCGCGTTAAATCACGGCCTCTGCTG
                                                                                                                                  ValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAsp
|||::: :: ::: ::: |||||||||||||||||
                                              GlnGluGluFheThrGluThrValValLysAlaArgAlaMetVal
                                                                                                                                                                                                        GGCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGTGATCAGAACTCTC
                                                                                                                                                                                                                                              AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIle
                                                                                                                                                                                                                                                                                                                                             LysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGACCACAAAACTTCAGGGCACCACTGATGTGGCCCCTCTGGCTGCCTATCTAGCACTG
                                                                                                    CTGCGCACCATGGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGGTATTTACTCAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                      AGTCCGATTGAGTGCGTGCGCAGCATTCCCCGGTGGTTCGATGACTGGTGCCCCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCTACGCCACAGTCCACCAACTTGTCAGCACCGTCTCTGCAGAGTTGGGGCCA----CGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGCGCAGTAATCCTAAAGATCGTGCAGAAAACTTGATGATCGTGGATTTGGTCCGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTAAAGGCACCAGGCCGCGTGGGCGAACAGCGCAAGAAGACCAAGAAATCATTGCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTTCCTCGCCGGAGCGGTTCATCACCATTGATTCGGCAGGTATGTGGAATCAAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ĊĠĬĠĠĠĠĊĊŖĸŢĊĊĊŖĊĊĠĊŖĬŖĬĠĠĬĠĊĠŦŖŢĊŤĬĊŖĠĊŢĠĠĠĠŖĸŢŖĊĊŤŖŦŢŤĬĠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                                                                            ::
                                                   674
1836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1431
                                                                                                                                                       658
                                                                                                                                                                                                                                                           638
                                                                                                                                                                                                                                                                                                                  1668
                                                                                                                                                                                                                                                                                                                                                                                                                      1608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1131
                                                                                                                                                                                                                                                                                                                                                                  618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            458
```

AAF72103 standard; DNA; 1983 ВP

(first entry)

Corynebacterium glutamicum MP protein nucleotide sequence SEQ Ħ NO:701.

Corynebacterium glutamicum; metabolic pathway protein; MP protein; fine chemical production; microorganism; organic acid; nucleoside; nonproteinogenic amino acid; purine base; pyrimidine base; nucleotide; lipid; saturated fatty acid; unsaturated fatty acid; diol; vitamin; carbohydrate; aromatic compound; cofactor; polyketide; enzyme; ds. Corynebacterium glutamicum

```
25-JUN-1999
01-JUL-1999
02-JUL-1999
08-JUL-1999
08-JUL
                                                                                 WPI; 200
P-PSDB;
                      proteins, useful including organic pyrimidine bases.
  Claim
                                                                                                                                             (BADI
                                                                                 2001-137957/14.
DB; AAB79984.
  u
T
                                  acids from Corynebacterium glutamicum er
s, useful for producing fine chemicals ir
ng organic acids, nonproteinogenic amino
                                                                                                                                             BASF
                                                                                                                     Σ
 Page 1130-1133;
                                                                                                                                                              99US-0141031P.
99US-01020476.
99US-01030476.
99US-01031418.
99DE-01031421.
99DE-01031424.
99DE-01031424.
99DE-01031434.
99DE-01031435.
99DE-01031478.
99DE-01031478.
99DE-01031478.
99DE-01031510.
99DE-0103151.
99DE-0103151.
99DE-0103152.
99DE-0103153.
99DE-0103153.
99DE-0103123.
99DE-0103123.
99DE-0103222.
99DE-0103222.
99DE-0103222.
99DE-0103222.
99DE-0103222.
99DE-0103222.
99DE-0103222.
99DE-0103222.
99DE-0103223.
99DE-0103222.
99DE-0103223.
99DE-0103223.
99DE-0103223.
99DE-0103223.
99DE-0103233.
99DE-0103233.
99DE-0103233.
99DE-0103233.
99DE-0103233.
99DE-01040766.
99DE-01040766.
99DE-01041379.
99DE-01042076.
99DE-01042076.
99DE-01042077.
99DE-01042086.
99DE-01042086.
99DE-01042086.
99DE-01042086.
99DE-01042086.
99DE-01042124.
99DE-01042124.
                                                                                                                                             ÅG.
                                                                                                                     Kroeger
                                                                                                                     B
1737pp; English
                                                                                                                     Schroeder
                                                                                                                    Ξ
                                                                                                                     Zelder
                                  encoding metabolic pathway in microorganisms, no acids, and purine and
                                                                                                                    Ó
                                                                                                                    Haberhauer
                                                                                                                    Q
                           Ó
                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query
DB:
                                                당
                                                                         S
                                                                                                밁
                                                                                                                        Ş
                                                                                                                                                    밁
                                                                                                                                                                     δ
                                                                                                                                                                                            음 성 음
                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match:
                                                                                                                                                                                                                                                   512
            767
                                  241
                                                                                221
                                                                                                                              201
                                                                                                                                                      632
                                                                                                                                                                            181
                                                                                                                                                                                                                           161
                                                                                                                                                                                                                                                                         141
                                                                                                                                                                                                                                                                                                  452
                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                392
                                                                                                                                                                                                                                                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                               332
                                                                                                                                                                                                                                                                                                                                                                                                                                             272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               μ.
                          GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                   ŀ
                                                                         ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                             SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                         GAAACATTCTTTGCCCCATTCCTCCCATGCTTTTTGGCTCGATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-686)
            -ĠĊĊĊAAGGAACCAĠĊTATĊŤŤĠĠŤĠĂŤĠĊĊĄĠĊĠĠŤĊĊŤĊŤĊĠĊĄĊĠĊACAAAAAAĊĊ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₿₽;
                                                                                                       -TGGCAACTCACGGAGAAAACTATTCCGCTCAGCGTTGATTCAGCAGCGGTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            409 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.74e-96
1487.00
60.06%
48.52%
41.62%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAF72103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            500 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-1983)
```

```
AAF71753 to AAF72330 encode the Corynebacterium glutamicum metabolic pathway (MP) proteins given in AAB79634 to AAB80211. The C. glutamicum nucleic acids are useful for the production of fine chemicals in microorganisms, including organic acids, nonproteinogenic amino acids, purine and pyrimidine bases, nucleosides, nucleotides, lipids, saturate and unsaturated fatty acids, diols, carbohydrates, aromatic compounds,
                                                                                                                                                                                                       polyketides and enzymes
                                                                                                                                                                  553
Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                  و.
                                                                                                                                                                  521
                                                                                                                                                                  7
                                                                                                                                                                  0
    1983
328
78
204
13
                                                                                                                                                                  U; 0 Other;
                                                                                                                                                                                                                                                 saturated
                                                                                                                                                                                                                                                                                                             Š
```

ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu CCGGTCCACGGTGAGGTTTCGCAGATCACCCATGATGGTTCAGGTTTATTTGCAGGCATC ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu GCTGATTTTGGTATCTGTGCAGGCGTCATTGAGCGTGCACGCGTTCCGATTTTGGGTGTG ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal GAAGAGGTTACGGGTCAGGCACCTGTGGTGGTGCCTAATGATCAAGAAATAGATGAGATG GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu TTGAAAGCTACAĞCTACCAĞCĞATĞATĞĞT†TGATCATĞGCATTĞGCACATGAAGTGCTT CCTGAAACGTTTGAGGCGGTGCGTTATCACTCGATGGTGGCAACCCGCTTGCCGGAGTCA TGTTTAGGCCACCAGGCATTGCGTTGGCCTATGGCGGTGATGTTGATTTGGCGCCCAGG GCAATTTCATCCGGAATCTATTGGTGGACAATTCGGCCATCAGATC 200 631 180 571 160 511 140 451 120 391 100 331 80 271 60 40 160 20 220

823 260

240 766

721 220 667

```
1649
                                                                                                                                                                                                                                                                                             1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1100
                                                                                                                                                                                                                                                                                                                                                                                                              1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                           CTGCGCACCATGGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGGTATTTACTCAGGT
                                                                                                                                                                                                             SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys
                                                                                                                                                                                                                                                                                                                                    ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGACCACAAAACTTCAGGGCACCACTGATGTGGCCCCTCTGGCTGCCTATCTAGCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATCTTGTCGCCCCGCGGATACCTGCGTCC---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyLeu---AlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrCluLeuLys
  AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIle
                                                                                                     LysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGly
                                                                                                                                                                                                                                                                                          ACCTACGCCACAGTCCACCTTGTCAGCACCGTCTCTGCAGAGTTGGGGCCA---CGC
                                                                                                                                                                                                                                                                                                                                                                                                           GACTTAGCCCGCGGCGCTTTGCCCACCACCACTTAAAACATCCAAGCTTTTCGACGTCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTTCCTCGCCGGAGCGGTTCATCACCATTGATTCGGCAGGGTATGTGGAATCAAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGCGAATCGTATGAAATCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluAlaAlaAlaGlyPheGlyProLeuAla---ArgAlaArgHisAspLysAspAlaTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGATCGCGCCATCGCAGTGGAATCGGATCAG----GTTCGGTTGCTGGCGTTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGAAGCTGGCGCACGGGCTGCGCACACTTCGAGTCTTCCGGATGCGCACCTCATTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATAATGTCGGCGAGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                                                                                                                                                                            AGTCCGATTGAGTGCGTGCGCGCAGCATTCCCCGGTGGTTCGATGACTGGTGCCCCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCGCAGTAATCCTAAAGATCGTGCAGAAAACTTGATGATCGTGGATTTGGTCCGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTAAAGGCACCAGGCCGCGTGGGCGAACAGCGCAAGAAGACCAAGAATCATTGCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTGGGGCCAATCCCACCGCATATGGTGCGTATCTTCAGCTGGGGGATACCTCTATTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----GATTTCTTCACCTGGCTAAAGGAGGATCTCGCCGCCAAC----TCAGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGGAGCAGGAC-----GAGTGGTTTGAAGAAACCATCAAGAAGCTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGACACCTCGCTTTGCAGGTTCGAGATTCCAAAGATGAGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                         ::
                                                                                                                                                                            1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1003
                                                                                                                                                                                                                                                                                          1648
                                                                                                                                                                                                                                                                                                                                                                                                           1591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1054
                                                                                                                   819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         280
  RESULT 7
RAFT1982
ID 71871982
ID 71871982
ID 71871982
XX AAF7
XX AAF7
XX AAF7
XX Cory

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
25-UN-1999
01-JUL-1999
02-JUL-1999
08-JUL-1999
09-JUL-1999
09-JUL-1999
09-JUL-1999
199-JUL-1999
199-JUL-199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAF71982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1829
99DE-01031419.
99DE-01031424.
99DE-01031424.
99DE-01031434.
99DE-01031435.
99DE-01031445.
99DE-01031541.
99DE-01031541.
99DE-01031541.
99DE-01031541.
99DE-01031541.
99DE-01031542.
99DE-01031542.
99DE-01031632.
99DE-01031632.
99DE-01032126.
99DE-01032126.
99DE-01032228.
99DE-01032228.
99DE-01032228.
99DE-01032228.
99DE-01032928.
99DE-01032928.
99DE-01032928.
99DE-01032928.
99DE-01032928.
99DE-01033006.
```

```
GCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGTGATCAGAACTCTC
                                                                CCGGAGGCTGAGTGGGAGGAAATCCGCGTTAAATCACGGCCTCTGCTG
                                                                                                    GlnGluGluPheThrGluThrValValLysAlaArgAlaMetVal
                                                                                                                                         ValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAsp
ВP
                                                                                                       674
                                                                                                                                                                                                                 1828
                                                                                                                                                                            658
```

standard; DNA; 1983

321

(first entry)

Corynebacterium glutamicum MP protein nucleotide sequence SEQ ID NO:459.

Corynebacterium glutamicum; metabolic pathway protein; MP protein; fine chemical production; microorganism; organic acid; nucleoside; nonproteinogenic amino acid; purine base; pyrimidine base; nucleotide; lipid; saturated fatty acid; unsaturated fatty acid; diol; vitamin; carbohydrate; aromatic compound; cofactor; polyketide; enzyme; ds

glutamicum

2000WO-IB000923

99US-0141031P. 99DE-01030476. 99US-0142101P. 99DE-01031415. 99DE-01031418.

S 밁 Ş 밁 Ś 밁 S Вb Ś 뫄 Ş 밁 δ Ъ Ş 밁 Ş 멍 Ś В Ş 밁 δ 밁 Š 皮 8 밁 5 밁 Ş 밁 ş В 8 밁 S

```
Best I
Query
DB:
                       S
                                                            밁
                                                                                            8
                                                                                                                                     밁
                                                                                                                                                                δ
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-2 (1-686) x AAF71982
                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          $\times \times \
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12-AUG-1999
27-AUG-1999
27-AUG-1999
27-AUG-1999
31-AUG-1999
31-AUG-1999
31-AUG-1999
31-AUG-1999
31-AUG-1999
31-AUG-1999
03-SEP-1999
03-SEP-1999
03-SEP-1999
03-SEP-1999
03-SEP-1999
03-SEP-1999
03-SEP-1999
03-SEP-1999
03-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAF71753 to AAF72330 encode the Corynebacterium glutamicum metabolic pathway (MP) proteins given in AAB79634 to AAB80211. The C. glutamicum ME nucleic acids are useful for the microorganisms, including organic acids, nonproteinogenic amino acids, purine and pyrimidine bases, nucleosides, nucleotides, lipids, saturated and unsaturated fatty acids, diols, carbohydrates, aromatic compounds,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nucleic acids from Corynebacterium glutamicum encoding metabolic pathway proteins, useful for producing fine chemicals in microorganisms, including organic acids, nonproteinogenic amino acids, and purine and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pyrimidine bases.
                                                            272
                                                                                                                                       221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2001-137957/14.
                                                                                                                                                                                                             161
                                                                                                                                                                                                                                                                                        101
                       81
                                                                                                                                                                        41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3; Page 825-828; 1737pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _
                                                                                                61
                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                               GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                       MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Σ
 CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                      ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                    ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                           GAAGAGGTTACGGGTCAGGCACCTGTGGTGGTGCCTAATGATCAAGAAATAGATGAGATG
                                                                                                                                                                                                                                                                                    ATGCGCGTTTTAATTATTGATAATTATGATTCTTTCACGTTTAATCTCGCCACCTATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cofactors,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ÅG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kroeger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0148613P.
99DE-01040764.
99DE-01040765.
99DE-01040832.
99DE-01041378.
99DE-01041378.
99DE-01041390.
99DE-01042076.
99DE-01042077.
99DE-01042087.
99DE-01042087.
99DE-01042087.
99DE-01042088.
99DE-01042088.
99DE-01042088.
99DE-01042088.
99DE-01042088.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BP; 409
                                                                                                                                                                                                                                                                                                                                                                                                               1.74e-96
1487.00
60.06%
48.52%
41.62%
                                                                                                                                 - TTCGACGCCGTCATCCTCACCTGGCCCGGGCCACGCCGGCGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              polyketides and enzymes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Schroeder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ç
                                                                                                                                                                                                                                                                                                                                                                (1-1983)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         553
                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ħ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zelder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ŧ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       u;
                                                                                                                                                                                                                                                                                                                                                                                                    1983
328
78
204
66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Haberhauer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>ن</u>
                                                          331
                                                                                            80
                                                                                                                                   271
                                                                                                                                                                      60
                                                                                                                                                                                                                                               40
                                                                                                                                                                                                                                                                                    160
                             S
                                                                          밁
                                                                                                 . 8
                                                                                                                                                 밁
                                                                                                                                                                                Ś
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                       Ś
 밁
                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                        덩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð, B
 1232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              632
                                                                                                                                                                                                                                                                                                                                                                                                                   341
                                                                                                                                                                                                                                                                                                                                                                                                                                                          944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                332
                                                                                                                                                                                                                                                              GlyLeu---AlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
CTGACCACAAAACTTCAGGGCACCÁCTGATGTGGCCCCTCTGGCTGCCTATCTAGCÁCTG
                                   LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                          CTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGCGAATCGTATGAAATCTGC
                                                                                                 LeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCys
                                                                                                                                                                      GluAlaAlaAlaGlyPheGlyProLeuAla---ArgAlaArgHisAspLysAspAlaTyr
                                                                                                                                                                                                                           AATCTTGTCGCCCCGCGGATACCTGCGTCC-----
                                                                                                                                                                                                                                                                                                                             ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                              GCCGATCGCGCCATCGCAGTGGAATCGGATCAG-----GTTCGGTTGCTGGCGTTG---
                                                                                                                                                                                                                                                                                                                                                                                                      AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATAATGTCGGCGAGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyAlaSerArgPheSerPheLeuGlyAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAMACATTCTTTGCCCATTCCTCCCATGCTTTTTGGCTCGATGAT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTAAGAACTTCCTTAATTTAGCGCGCACATATCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MetAlaAsnPhéArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGAAAGCTACAĞCTACCAĞCĞATĞATĞĞTTTGATCATĞGCATTĞGCACATGAAGTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----GATTTCTTCACCTGGCTAAAGGAGGATCTCGCCGCCAAC-----TCAGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGTCCACGGTGAGGTTTCGCAGATCACCCATGATGGTTCAGGTTTATTTGCAGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTTTAGGCCACCAGGGCATTGCGTTGGCCTATGGCGGTGATGTTGATTTGGCGCCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----TGGCAACTCACGGAGAAAACTATTCCGCTCAGCGTTGATTCAGCAGCGGTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTGAAACGTTTGAGGCGGTGCGTTATCACTCGATGGTGGCAACCCGCTTGCCGGAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAATTTCATCCGGAATCTATTGGTGGACAATTCGGCCATCAGATC
                                                                                                                                                  GGACACCTCGCTTTGCAGGTTCGAGATTCCAAAGATGAGTAT
                                                                                                                                                                                                                                                                                                     ----GAGTGGTTTGAAGAAACCATCAAGAAGCTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----
                                                                                                                                                                                                                                                              399
                                   458
                                                                          1231
                                                                                                                                                  1171
                                                                                                                                                                                      418
                                                                                                                                                                                                                           1129
                                                                                                                                                                                                                                                                                                                                           380
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1003
                                                                                                                                                                                                                                                                                                                                                                                1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            667
```

```
RRESULT 8
ADD13458
ADD13458
ADD13458
AC ADD1
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                              ds; gene; metabolic pathway regulation; fine chemical; lysine; nucleotide; nucleoside; lipid; fatty acid; diol; carbohydrate; aromatic compound; vitamin; co-factor; enzyme; food; animal fe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-JAN-2004
  05-NOV-2001; 2001DE-01054292
                                          31-OCT-2002; 2002WO-EP012141
                                                                                        15-MAY-2003.
                                                                                                                                  WO2003040681-A2
                                                                                                                                                                                                                                                                   Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADD13458
                                                                                                                                                                                                                                                                                                                                                                                                                      glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGTGATCAGAACTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACTTAGCCCGCGGCGCTTTGCCCCACCACAGTTAAAACATCCAAGCTTTTCGACGTCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTAAAGGCACCAGGCCGCGTGGGCGAACAGCGCGCAAGAAGACCAAGAAATCATTGCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGTTCCTCGCCGGAGCGGTTCATCACCATTGATTCGGCAGGGTATGTGGAATCAAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGGAGGCTGAGTGGGAAGGAAATCCGCGTTAAATCACGGCCTCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlnGluGluPheThrGluThrValValLysAlaArgAlaMetVal 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCATCCAGAACAATCACGTGGAGTACGGAGTGGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGCGCACCATGGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGGTATTTACTCAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCTACGCCACAGTCCACCAACTTGTCAGCACCGTCTCTGCAGAGTTGGGGGCCA----CGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGCGCAGTAATCCTAAAGATCGTGCAGAAAACTTGATGATCGTGGATTTGGTCCGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTCCGATTGAGTGCGTGCGCAGCATTCCCCGGTGGTTCGATGACTGGTGCCCCAAAG
                                                                                                                                                                                                                                                                                                         pharmaceutical.
                                                                                                                                                                                                                                                                                                                                                                                                                      metabolic
                                                                                                                                                                                                                                                              glutamicum.
                                                                                                                                                                      Location/Qualifiers
101. .1978
/*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2005
                                                                                                                                                                                                                                                                                                                                                                                                                   pathway associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ВP
                                                                                                                                                                                                                                                                                                                                                                                                                      DNA RXA00579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     518
                               Ś
                                                                                     밁
                                                                                                                            Š
                                                                                                                                                                             밁
                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
```

```
polymucleotides, polypeptides and variants associated with the regulation of metabolic pathways. The products of the invention are used for production of fine chemicals, preferably amino acids and specifically lysine, but more generally nucleotides, nucleosides, lipids, fatty acids diols, carbohydrates, aromatic compounds, vitamins, co-factors and enzymes, useful in the food, animal feed, cosmetics and pharmaceutical industries. The polymucleotides of the invention, optionally as primers and probes, can also be used for identification and classification of C. glutamicum and related species, e.g. for diagnosis, for genomic mapping, functional or evolutionary studies, gene manipulation and modulation of metabolic activity. Cells containing the products of the invention may produce fine chemicals in improved yields, with higher productivity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    useful for production microorganisms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New nucleic acid encoding variant forms of metabolic regulatory useful for production of fine chemicals, specifically lysine, in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 1; SEQ ID NO 25; 328pp; German
                                                                                                                                                                                                                                                                                                                                                                                                                                                               This invention describes novel Corynebacterium glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Haberhauer G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (BADI ) BASF AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2003-482273/45.
DB; ADD13459.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ó
more efficiently.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pompejus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Schroeder
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ï
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kroeger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Klopprogge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                           fatty acids,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 proteins,
```

Sequence 2005 BP; 417 A; 506 C; 559 G; 523 T; 0 U; 0 Other;

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                              US-10-089-514-2 (1-686) x ADD13458 (1-2005)
                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                       No.:
                                                                176 GAAGAGGTTACGGGTCAGGCACCTGTGGTGGTGCTTAATGATCAAGAAATAGATGAGATG
                               4
                                                                                                                                                                                                                                                                  Similarity:
                                                                                                21
                                                                                   GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                    MetArgThrLeuIeAuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                 ATGCGCGTTTTAATTATTGATAATTATGATTCTTTCACGTTTAATCTCGCCACCTATGTG
                 ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                    1.76e-96
1487.00
60.06%
48.52%
41.62%
TTCGACGCCGTCATCCTCACCTGGCCCGGGCCACGCCGGCGTTGCG
                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                   2005
328
78
204
13
```

40

175

20

407

101

ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu

120

466

100

346

406

80

60

235

GCTGATTTTGGTATCTGTGCAGGCGTCATTGAGCGTGCACGCGTTCCGATTTTGGGTGTG GCTGATTTTGGTATCTGTGCAGGCGTCATTGAGCGTGCACGCGTTCCGATTTTGGGTGTG CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu

AGGCATTGCCTTGGCCTATGGCGGTGATGTTGATTTGGCGCCCAGG

141

LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys

TTGAAAGCTACAGCTACCAGCGATGATGGTTTGATCATGGCATTGGCACATGAAGTGCTT

140 526 160 586 347

287 81

61 ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal

```
1187
                                                                                                                                                                                                                                                                                                                                                                          1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1115
   1427
                                                                                                                                                  1307
                                                                                                                                                                                                                         1247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1019
                                                                                                                                                                                     459
                                                                                                                                                                                                                                                              439
                                                                                                                                                                                                                                                                                                                                     419
                                                                                                                                                                                                                                                                                                                                                                                                              400
                                      499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 161
                                                                                                                                                                                                                                                    LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                                                                                                                                                                                                                                                                    LeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCys
                                                                                                                                                                                                                                                                                                                                                                                                                                             AATCTTGTCGCCCGCGGATACCTGCGTCC-----
                                                                                                                                                                     ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeu
                                                                                                                                                                                                                                                                                                                                                                                         GluAlaAlaGlyPheGlyProLeuAla---ArgAlaArgHisAspLySAspAlaTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyLeu---AlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGATCGCGCCATCGCAGTGGAATCGGATCAG-----GTTCGGTTGGCGTTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrCluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
ATTANAGGCACCAGGCCGCGTGGGCGAACAGCGCAAGAAGACCAAGAAATCATTGCTGAG
                     IleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAsp
                                                                                            SerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysPro
                                                                                                                                                CGTGGGGCCAATCCCACCGCATATGGTGCGTATCTTCAGCTGGGGGATACCTCTATTTTG
                                                                                                                                                                                                                     CTGACCACAAAACTTCAGGGCACCACTGATGTGGCCCCTCTGGCTGCCTATCTAGCACTG
                                                                                                                                                                                                                                                                                               CTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGCGAATCGTATGAAATCTGC
                                                                                                                                                                                                                                                                                                                                                                      -----GGACACCTCGCTTTGCAGGTTCGAGATTCCAAAGATGAGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GGGGAGCAGGAC-----GAGTGGTTTGAAGAAACCATCAAGAAGCTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp
|||||||||||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGAAGCTGGCGCACGGGCTGCGCACACTTCGAGTCTTCCGGATGCGCACCTCATTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAAACATTCTTTGCCCATTCCTCCCATGCTTTTTGGCTCGATGAT--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTAAGAACTTCCTTAATTTAGCGCGCACATATCGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----TGGCAACTCACGGAGAAAACTATTCCGCTCAGCGTTGATTCAGCAGCGGTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GATTTCTTCACCTGGCTAAAGGAGGATCTCGCCGCCAAC----TCAGTTGCG
1486
                                  518
                                                                       1426
                                                                                                                                                1366
                                                                                                                                                                                                                     1306
                                                                                                                                                                                                                                                                                             1246
                                                                                                                                                                                                                                                                                                                                   438
                                                                                                                                                                                                                                                                                                                                                                      1186
                                                                                                           498
                                                                                                                                                                                     478
                                                                                                                                                                                                                                                          458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
```

8

밁 Ś

S 밁

밁 ર્ 밁 ર્

뮍

ર્ 밁 S 밁 S 밁 ş 문 Ş 밁 5 밁 5 В ક 밁 S 밁 S 멍 Ś 밁 Ś 밁 Ş

밁

The present invention provides a number of nucleotide and protein sequences from the Coryneform bacterium Corynebacterium glutamicum. are useful for identifying the mutation point of a gene derived from

from

These ρυ

Disclosure; SEQ ID NO

7062; 246pp + Sequence Listing;

English

gene

```
RASSULT 9
AAH68
XX AAH6
XX AAH6
XX AAH6
XX COP
DE C 91
XX CORY
XX CORY
XX COP
PN EP11
XX PF 18-D
PF 18-D
XX 18-D
PF 18-D
XX 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ર્જ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             음 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        음 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          음. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16-DEC-1999;
07-APR-2000;
03-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                     Nakagawa
Tateishi
                                                                                                                                                                               Novel polynucleotides derived from Coryneform bacteria, for identify mutation point of a gene, measuring expression of a gene, analyzing expression profile or pattern of a gene and identifying homologous of the corynery of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               organic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Coryneform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAH68527;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAH68527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (KYOW ) KYOWA HAKKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1487
                                                                                                                                                                                                                                                                                                                         2001-376931/40.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               orm bacterium; amino acid synthesis; ds.
                                                                                                                                                                                                                                                                                                                                                                              'nά
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGGAGGCTGAGTGGGAGGAAATCCGCGTTAAATCACGGCCTCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlnGluGluGluPheThrGluThrValValLysAlaArgAlaMetVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGTGATCAGAACTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCTACGCCACAGTCCACCAACTTGTCAGCACCGTCTCTGCAGAGTTGGGGCCA----CGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACTTAGCCCGCGGCGCTTTGCCCACCACAGTTAAAACATCCAAGCTTTTCGACGTCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGCGCAGTAATCCTAAAGATCGTGCAGAAAACTTGATGATCGTGGATTTGGTCCGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; 99JP-00377484.
; 2000JP-00159162.
; 2000JP-00280988.
                                                                                                                                                                                                                                                                                                                                                                              Mizoguchi
Senoh A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000EP-00127688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KOGYO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entry)
                                                                                                                                                                                                                                                                                                                                                                                  H, Ando
Ikeda M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 겆
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acid synthesis; vitamin; saccharide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fragment
                                                                                                                                                                                                                                                                                                                                                                                  S, Hayashi
Ozaki A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IJ
                                                                                                                                                                                                                                                                                                                                                                                                               ĭ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                   Ochiai
                                                                                                                                                                                                                                                                                                                                                                                                                   ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 674
                                                                                                                                                                                                                                                                                                                                                                                                                   Yokoi
                                                                                                                                                                                                                                                 identifying
                                                                                                                                                                                                                                                                                                                                                                                                                   Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1546
```

```
밁
                               Ś
                                                                  B
                                                                                                     Ś
                                                                                                                                          밁
                                                                                                                                                                      Ś
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mutant of coryneform bacterium, measuring expression amount and analysing the expression profile or expression pattern of a gene derived from Coryneform bacterium, and identifying a homologue of a gene derived from coryneform bacterium. Coryneform bacteria are useful for producing amino acids, nucleic acids, vitamins, saccharides and organic acids, particularly L-lysine. The present sequence is a nucleic acid described in the exemplification of the invention. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from the European Patent Office
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 349980 BP; 79725 A; 90426 C; 98918 G; 80911 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                       152492
                                                                                                                                                                                                                                                                                                                                                                                                                                    152372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               152252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   152192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          152141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                152081
                                                                                                                                                                                                                                                                                                                          161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGCGCGTTTTAATTAATTAATTAATGATTCTCACGTTTAATCTCGCCACCTATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGAGGTTACGGGTCAGGCACCTGTGGTGGTGCCTAATGATCAAGAAATAGATGAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetArgThrLeuIeAuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                        GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                                                                                                             MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                                                                                                                                                     CCGCAGTGGGGTGCAATTTCATCCGGAATCTATTGGTGGACAATTCGGCCATCAGATC
                                                                                                                                                                                                                                                                                                                                                                                             LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTGATTTTGGTATCTGTGCAGGCGTCATTGAGCGTGCACGCGTTCCGATTTTGGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                      GAAACATTCTTTGCCCCATTCCTCCCATGCTTTTTGGCTCGATGAT
                                                                                              ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                      SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                                                                          ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                                                                                                                                                                             TTGAAAGCTACAGCTACCAGCGATGATGGTTTGATCATGGCATTGGCACATGAAGTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                CCTGAAACGTTTGAGGCGGTGCGTTATCACTCGATGGTGGCAACCCGCTTGCCGGAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGGTCCACGGTGAGGTTTCGCAGATCACCCATGATGGTTCAGGTTTATTTGCAGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGTTTAGGCCACCAGGGCATTGCGTTGGCCTATGGCGGTGATGTTGATTTGGCGCCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (1-686) x AAH68527
TGGCAACTCACGGAGAAAACTATTCCGCTCAGCGTTGATTCAGCAGCGGTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7.37e-94
1487.00
60.06%
48.52%
41.62%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .TTCGACGCCGTCATCCTCTCACCTGGCCCGGGCCACGCCGGCGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (1-349980)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         349980
328
78
204
66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                       240
                                                                                                                                          152641
                                                                                                                                                                              220
                                                                                                                                                                                                                                                                                       152551
                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        152371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             152311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   152251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        152191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   152080
                                        S
                                                                                                                    Ş
                                                                                                                                                                                   δ
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                  밁
                                                                                   멍
                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   153272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              153152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               153020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     152810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               152744 CATAATGTCGGCGAGGGG--
                                                                                                                                                                                                                                                                                                                                           519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyLeu---AlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGCGCACCATGGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGGTATTTACTCAGGT
                                                LysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGly
                                                                                                           SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys
                                                                                                                                                                                     ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                                                                                                                                                                                                                 GACTTAGCCCGCGGCGCTTTGCCCACCACAGTTAAAACATCCAAGCTTTTCGACGTCGAA
                                                                                                                                                                                                                                                    AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu
                                                                                                                                                                                                                                                                                                        CTGCGCAGTAATCCTAAAGATCGTGCAGAAAACTTGATGATCGTGGATTTGGTCCGCAAC
                                                                                                                                                                                                                                                                                                                          LeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsn
                                                                                                                                                                                                                                                                                                                                                                              ATTAAAGGCACCAGGCCGCGTGGGCGAACAGCGCAAGAAGAACCAAGAAATCATTGCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                   IleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGTTCCTCGCCGGAGCGGTTCATCACCATTGATTCGGCAGGGTATGTGGAATCAAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGTGGGGCCAATCCCACCGCATATGGTGCGTATCTTCAGCTGGGGGGATACCTCTATTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGACCACAAAACTTCAGGGCACCACTGATGTGGCCCCTCTGGCTGCCTATCTAGCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGGCGAATCGTATGAAATCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluAlaAlaGlyPheGlyProLeuAla---ArgAlaArgHisAspLysAspAlaTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATCTTGTCGCCCCGCGGATACCTGCGTCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGATCGCGCCATCGCAGTGGAATCGGATCAG-----GTTCGGTTGCTGGCGTTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGGAAGCTGGCGCACGGCTGCGCACACTTCGAGTCTTCCGGATGCGCACCTCATTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                                                                                                                                                           ACCTACGCCACAGTCCAACTTGTCAGCACGGTCTCTGCAGAGTTGGGGGCCA---CGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----GATTTCTTCACCTGGCTAAAGGAGGATCTCGCCGCCAAC-----TCAGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -ĠĠĀCĀCĊTĊĠĊTTTGCĀGGTTĊĠĀGĀTTCCĀĀĀĠĀTGĀGTĀT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----GAGTGGTTTGAAGAAACCATCAAGAAGCTGCAT
                    153688
                                                   618
                                                                                                                                                                                                                                                                                                                                                                                                                 518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         153271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               153211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          153091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                   153511
                                                                                                                                                                                                                                                                                                                                                                                                                                                     153331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      153151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               153049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      152863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     280
                                                                                                                                                                                                                                                                                                        153451
                                                                                                                                                                                                                                                                                                                                                                              153391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152809
```

```
RESULT 10
ACF67367_49
Continuation (
WP Sequence sp
   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P Sequence split into
Fragment Name
P ACF67367 00
P ACF67367-01
P ACF67367-02
P ACF67367-03
                                                                                                                                                                                                                                                                                                                                                                                                                                 ACF67367_24
ACF67367_25
ACF67367_25
             ACF67367 33

ACF67367 33

ACF67367 37

ACF67367 37

ACF67367 37

ACF67367 39

ACF67367 40

ACF67367 41

ACF67367 42

ACF67367 44

ACF67367 47

ACF67367 47

ACF67367 48

ACF67367 49

ACF67367 49

ACF67367 50

                                                                                                                                                                                                                                                                                                                                    ACF67367_26
ACF67367_27
ACF67367_28
ACF67367_28
ACF67367_39
ACF67367_30
ACF67367_31
ACF67367_31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACF67367 07
ACF67367 09
ACF67367 10
ACF67367 11
ACF67367 13
ACF67367 13
ACF67367 14
ACF67367 16
ACF67367 16
ACF67367 17
ACF67367 17
ACF67367 19
ACF67367 19
ACF67367 19
ACF67367 20
ACF67367 21
ACF67367 22
ACF67367 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             153749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     153809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     153689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGTGATCAGAACTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of 57)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of ACF67367 from base 4900001 (Photorhabdus luminescens nucleot 57 fragments LOCUS ACF67367 Accession Acf67367
32000001
3400001
35000001
35000001
37000001
37000001
38000001
44000001
442000001
443000001
445000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
447000001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1500001
1600001
1700001
1800001
1900001
2000001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1100001
1200001
1300001
1400001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                800001
900001
1000001
                                                                                                                                                                                                                                                                                                                                                                                                              2600001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2200001
                                                                                                                                                                                                                                                                                                                                                                                                2800001
                                                                                                                                                                                                                                                                                                                                                                                 290000
                                                                                                                                                                                                                                                                                                                                                                                                                                            250000:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           240000:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100001
200001
300001
400001
500001
700001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Begin
             2010000
2110000
2210000
2210000
2210000
2210000
2210000
2210000
2210000
2210000
2210000
2310000
310000
310000
310000
310000
3110000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
31000000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
3100000
310000
310000
310000
310000
310000
310000
310000
310000
31000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           810000
910000
1010000
1210000
1210000
1310000
1410000
1510000
1610000
1810000
1810000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        410000
510000
610000
710000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                110000
210000
310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  153748
                                                    δ
                                                                                                        S
                                                                                                                                                                 δ
                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                           뫄
                                                                                   В
                                                                                                                                           밁
                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-089-514-2 (1-686) x ACF67367_49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       , ¥P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACF67367_56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  74617
                                                                                                                                                                                                                                                               74977
                                                                                                                                                                                                                                                                                                                      74917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            74677
                                                                                                                                            75097
                                                                                                                                                                                                                                                                                                                                                                                                                                          74797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       74497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74377
                                                                                                                                                                                                      75037
                                                                                                                                                                                                                                                                                                                                             181 MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHis------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101
283 ProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAlaProGlu 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21 GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    μ
                                                                                                                                                                                                                                                                                                                                                                              ValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThrArgArg
                                                                                   GCCCGCTTCTCAATGATGGCAGCGGTAATGAACAAGGTGCTGTCAGACTTGAATACAGT
                                                                                                        SerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThrTyrArg
                                                                                                                                                           CysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGluGlyAla :::
                                                                                                                                                                                                    CTCAACCTGAATTATCGTGAATGTAAGGAGATAGTCGATCCTGAATCCTTGTTTATTCAA
                                                                                                                                                                                                                           TyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArgArgGly
                                                                                                                                                                                                                                                                                                                   :::::||||||
CTCAGTAATTTCGTGCGGATAGCGGAGACGTATAAAGAGAATAATGAACAGGAAGTTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGAACAGTTTGAAGTGGTCAGATATCACTCGTTGGTATGTACCCCGGTTGCCCCGACAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProSerProPhéThrAlaValArgTyrHisŚerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGGTACATGGCTATCGCAGTCGCATCAGGAACACTGGAGAAGGATTGTTCCTCGGTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGTGATTTTGGGGTCTGTGCTGAAGTTATTGCACATGCCAAAGTGCCACTGTTGGGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGATAGACGAATATGATGCGGTAGTCCTTTCTCCGGGGCCAGGACATCCGGCTGAAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATGAAGTGACGGGCAGTGTGCCGTAGTCACCAATTCTTTGACTTATGAAGAGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGAAAATACTGCTCATTGATAATTATGATTCCTTTACGCAAAACATTGCTCAATATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                            GTACAGACTGAGAATTTGCGTTTGATCGGTCCTGATGGCGAGAGGATT----GTTCAGGGA 75273
                                                                                                                                            CGTTATGGCAATGATACGCATGCTTTCTGGCTTGATAGTGAAAATTCTGATAGACCCAAT
                                                                                                                                                                                                                                                              GCTCAGAATATATGTACTGATATCAATGAGGCTTATCTTGCAGTAGGTGGAAGACAAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.26e-93
1475.50
58.47%
45.59%
41.30%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5600001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5648894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-110000)
                                                                                                                                                                                                                                                                                     -----GlyAlaAspSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110000
315
89
250
37
                                                                                                                                                                                                                                                                                                                                                                                                                                         74856
                                                                                                                                                                         242
                                                                                                                                                                                                      75096
                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40
                                                                                                                                            75156
                                                                                                                                                                                                                                                               75036
                                                                                                                                                                                                                                                                                            202
                                                                                                                                                                                                                                                                                                                                                      197
                                                                                                                                                                                                                                                                                                                                                                                 74916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     74676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         74436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            74736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               74496
```

```
Ś
                                     В
                                                        Ś
                                                                                  В
                                                                                                      5
                                                                                                                         Вb
                                                                                                                                                δ
                                                                                                                                                                            В
                                                                                                                                                                                             Ş
                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                        75949
                                      76249
                                                                                                                                                                                                                                                                                                                                                                  75829
               640
LysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                             AlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeu
::: | | | :::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPheAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVall1eArgThrIleVal
                                                                                               ArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAla
                                                                                                                                                                                         TyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSer
                                                                                                                                                                                                                                                                                  AlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAsp
:::
                                                                                                                                                                                                                                                                                                                                                                                                               CATGCCAGTCCTGTACCTTATGGCGCTTATCTGGCCTGTGGGGGATTTTTCTGTACTCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                           AlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGAATAGGGCCAAGATGACTTATTCAGGACATCCATTGGACGCTTATCGGCGTATGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgAlaIleAlaLeuAspHisGlnGluGlyCys-----CysTyrLeuLeuAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGCCATTGGTATTTAAAGGCGGGTTTGTTGGTTATTTAGGATATGAATTAAAGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLysAlaGlu
                                     CTTGGATGGTTATCTTTCAGTGGTGAAGTGGAATTGAGCATTGTGATACGCACCGCGGTA
                                                                                  CGCACGATGGAGATTATTGATGCTTTAGAGTCATCGGCTCGTGGTGTTTACTCCGGTGCG
                                                                                                                                                                            TTCTCTTCTGTACATCAATTGGTTTCGACCATACGCGGTCAATTATGTGAAGAAACGTCA
                                                                                                                                                                                                                                                                     AGTCAGTCTACTAAGGATAGGGCAGAAAATCTGATGATAGTGGACTTAGTGCGCCATGAT
                                                                                                                                                                                                                                                                                                                     AAGGGGACCCGGCCACGCGGAAAAACGGCAGCCGATGATCAGCATTTGCAGATGGAATTG
                                                                                                                                                                                                                                                                                                                                                                 GCATCACCAGAAACGTTTTTACGTATTGATGACGCCAGAAATATTGAGTCCAGACCGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CATTTTTTTGTCTTCGATCATCAGCAGAGTAAACTTTATGAATGTTTTATCACACCAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACAATTGGCAGCAACAATATCGTTCAGAACATCCTGATGCCAGCTTAATATTTACTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----AAAAATACCGGTGAAGTGATACCTGACTTTATTCCTGGCGCTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -ATTTGTCTGGAATATGGCGCTGAGAAATATATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGTCACCGGAACTTTTCGTTACCAAT
                                                                                76248
                                                                                                                              76188
                                                                                                                                                                            76128
                                                                                                                                                                                                                         76068
                                                                                                                                                                                                                                                                                                                   75948
                                                                                                                                                                                                                                                                                                                                                                75888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       75393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   75333
                                    76308
                                                                                                       619
                                                                                                                                                                                                    579
                                                                                                                                                                                                                                                                       76008
                                                                                                                                                                                                                                                                                                                                                                                       499
                                                                                                                                                                                                                                                                                                                                                                                                               75828
                                                                                                                                                                                                                                                                                                                                                                                                                                      479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     75648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 11
ACP65387 1
Continuation (2 of 7)
WP Sequence split into
WP Fragment Name
WP ACP65387 0
WP ACP65387 2
WP ACP65387 3
WP ACP65387 3
WP ACP65387 4
WP ACP65387 5
ACP65387 5
WP ACP65387 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment
Pred. No.:
                              S
                                                                         Ş
                                                                                                                       Ş
                                                                                                                                                    밁
                                                                                                                                                                     δ
                                                                                                                                                                                               밁
                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
              밁
                                                         밁
                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                            14131
                                                                                                                                                                                                                                                                                                                                          14071
                                                                                                                                                                                                                                                                                                                                                                                        14011
                                                                                                         14371
                                                                                                                                                                                                   14251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scores:
                                                                                                                                                                           141
                                                                                                                                                                                                                                                                     101
                                                                                                                                                                                                                                                                                                                  81
                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                            21
```

```
B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-2 (1-686) x ACF65387_1 (1-110000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76309 TTACATCAAGAGTGTGCTGAATTCGGCATTGGGGGGGCAATTGTTGCTCATTCTGATCCT 76368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                    MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHis------::::::||||||| :::
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGTGATTTTGGGGTCTGTGCTGAAGTTATTGCACATGCCAAGTGCCACTGTTGGGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGAAGTGACGGGCAGTGTGCCGTAGTCACCAATTCTTTGACTTATGAAGAGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGAAAATACTGCTCATTGATAATTATGATTCCTTTACGCAAAACATTGCTCAATATCTG
GCTCAGAATATATGTACTGATATCAATGAGGCTTATCTTGCAGTAGGTGGAAGACAAGAT 14550
                                                            :::::|||||||
CTCAGTAATTTCGTGCGGATAGCGGAGACGTATAAGAGAATAATGAACAGGAAGTTACC
                                                                                                                                                      ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                   CTGAAATGTACTGCCTGGACTGATGATGATGATCATGGCAATTGAGCACACCGAAAGG
                                                                                                                                                                                                                    LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                     CCTGAACAGTTTGAAGTGGTCAGATATCACTCGTTGGTATGTACCCGGGTTGCCCGACAAT
                                                                                                                                                                                                                                                                                        ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                   CCGGTACATGGCTATCGCAGTCGCATCAGGAACACTGGAGAAGGATTGTTCCTCGGTTTG
                                                                                                                                                                                                                                                                                                                                                  ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATGGCGAATTTGAAGAGACATTGGTCAAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluGluGheThrGluThrValValLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          f 7) c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            o of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.26e-93
1475.50
58.47%
45.59%
41.30%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACF65387 from fragments LOC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100001
200001
300001
400001
500001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Begin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         End
110000
210000
310000
410000
510000
610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          om base 100001
LOCUS ACF65387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Photorhabdus luminescens nucleotide Accession Acf65387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    110000
315
89
250
37
                                -GlyAlaAspSerPro
                                                                                                                                                                                                                                                                                                                                   14250
                                                                                                  197
                                                                                                                                                                                                   14370
                                                                                                                                                                                                                                    160
                                                                                                                                                                                                                                                                     1431(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
```

음 중

S

ঠ

유

밁

```
15523
                                                                                                                                                                                                                        15403
                                                                                                                                                                                                                                                                                                                                  15343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14611
                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         243
                                                                                                                                                                                                                                                                                                                             GCATCACCAGAAACGTTTTTACGTATTGATGACGCCAGAATATTGAGTCCAGACCGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                    CATGCCAGTCCTGTACCTTATGGCGCTTATCTGGCCTGTGGGGATTTTTCTGTACTCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPheAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGCCATTGGTATTTAAAGGCGGGTTTGTTGGTTATTTAGGATATGAATTAAAGGCGCTG 14907
                                 LeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThr
                                                                                                                                                 AlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAsp
                                                                                                                                                                                                                                                    LysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                            AlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATCAAAATAAG------ATTTGTCTGGAATATGGCGCTGAGAAATATATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGCAGCCACATCAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgAlaIleAlaLeuAspHisGlnGluGlyCys------CysTyrLeuLeuAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACAATTGGCAGCAACAATATCGTTCAGAACATCCTGATGCCAGCTTAATATTTACTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATTTTTTCCCCCTGATGTCCAGTTGCTTGATGTGGCGCAATTTCGACACCAAAATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTACAGACTGAGAATTTGCGTTTGATCGGTCCTGATGGCGAGAGGATT---GTTCAGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThrArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCCCTTCTCAATGATGGCCAGCGGTAATGAACAAGGTGCTGTCAGACTTGAATACAGT
  CTTAATCAGGTATGTCGTCCAGGTAGTGTGCATGTACCTGAATTATTTAAAGTTGAGAGC
                                                                                                          AGTCAGTCTACTAAGGATAGGGCAGAAAATCTGATGATAGTGGACTTAGTGCGCCATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACGAATAGGGCCAAGATGACTTATTCAGGACATCCATTGGACGCTTATCGGCGTATGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACA-----AAAAATACCGGTGAAGTGATACCTGACTTTATTCCTGGCGCTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspargArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATTTTTTTGTCTTCGATCATCAGCAGAGTAAACTTTATGAATGTTTTATCACACCAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLysAlaGlu
;;;|||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProPhePheAsnTyrLeuGluGlnLeuGluArgArgArgValProValAlaProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThrTyrArg 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTTATGGCAATGATACGCATGCTTTCTGGCTTGATAGTGAAAATTCTGATAGACCCCAAT 14670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCAACCTGAATTATCGTGAATGTAAGGAGATAGTCGATCCTGAATCCTTGTTTATTCAA 14610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGluGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArgArgGly
                                                                                                                                                                                                                     CGGCCACGCGAAAAACGGCAGCCGATGATCAGCATTTGCAGATGGAATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGTCACCGGÁACTTTTCGTTÁCCAAT 15069
15582
                                                                                                          15522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              242
                                                     559
                                                                                                                                                                                                                                                                                                                                                                                  499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         322
                                                                                                                                                                                                                     15462
                                                                                                                                                                                                                                                                                                                             15402
                                                                                                                                                                                                                                                                                                                                                                                                                                       15342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14730
```

S

밁

S

음 성

밁

밁

8 8 8 8 8 8 8 8

TyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSer

```
RESULT 1:
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           정. 분
                     The invention relates to the isolation of genes and their encoded proteins from Photorhabdus luminescens. The isolated sequences are sources of probes and primers for detecting the genome of P. luminescens and related species; to study polymorphisms; for gene analysis and for detection/amplification of the genes. Antibodies (Ab) raised against the polypeptides encoded by the genes are used for detection/identification of P. luminescens, e.g. in foods. The genes, proteins, Ab and cells that carry a gene-containing vector are used to select compounds that modulate, regulate, induce or inhibit expression of the genes in plants, animals or microorganisms other than P. luminescens and are able to alter response or sensitivity to toxins and antihiotics produced by P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Duchaud E,
Buchrieser
                                                                                                                                                                                                                                                                                                                                                                                     Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       detection; food; gene expression; plant; animal; microorga; antibiotic; biopesticide; virulence factor; disease model;
                                                                                                                                                                                                                                                                                                                                                                                                                                        useful e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2003-148459/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (INSP )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 07-FEB-2001; 2001FR-00001659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          07-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-NOV-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Photorhabdus luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Antibacterial; fungicide; insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Photorhabdus luminescens nucleotide sequence #10240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACF71773;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACF71773 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            whooping cough; gene; ds.
luminescens. Cells transformed to express the genes are useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15883 TATGGCGAATTTGAAGAGACATTGGTCAAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              15643 TCCATAGAGGCTATCCGGGCATGTTTTCCAGGAGGATCAATGACCGGCGCACCGAAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             640
                                                                                                                                                                                                                                                                                                                                                                            2; SEQ ID NO 10240; 1205pp; French
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CNRS
                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence of Photorhabdus luminescens and encoded polypeptides, e.g. as therapeutic antimicrobials and agricultural pesticides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluGluGluPheThrGluThrValValLysAla 670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuAlaAspGlýGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTGGATGGTTATCTTTCAGTGGTGAAGTGGAATTGAGCATTGTGATACGCACCGCGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuGlyTrpPhėAlaLeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIleVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCACGATGGAGATTATTGATGCTTTAGAGTCATCGCCTCGTGGTGTTTACTCCGGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTACATCAAGAGTGTGCTGAATTCGGCATTGGGGGGCGAATTGTTGCTCATTCTGATCCT 15882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Taourit
C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PASTEUR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2002WO-IB003040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RECH SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Glaser P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Frangeul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               polymorphism; genetic analysis;
t; animal; microorganism; toxin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kunst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'EJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Danchin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15642
```

963

323 903 303 843

360

```
Score:
Percent Similarity:
Rest Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best I
Query
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment
Pred. No.:
                          Š
                                                            밁
                                                                                           ş
                                                                                                                                                      Š
                                                                                                                                                                                            밁
                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뭉
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-2 (1-686) x ACF71773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              recombinant production of the proteins, particularly toxins and antibacterials useful as insecticides, bactericides and fungicides. The genes, proteins, vectors containing the genes and Ab are also useful therapeutically (to treat microbial infection by bacteria or fungi that are sensitive to P. luminescens-encoded toxins or antibiotics) and as biopesticides. Other uses of the genes and the proteins are as virulence factors and for identifying targets of human diseases for which P. luminescens is a model (particularly plague and whooping cough). This sequence represents one of the isolated P. luminescens genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2019 BP; 531 A; 386 C;
                              244
                                                              667
                                                                                              224
                                                                                                                            607
                                                                                                                                                            204
                                                                                                                                                                                              547
                                                                                                                                                                                                                                                                                                                             427
                                                                                                                                                                                                                                                                                                                                                                                           367
                                                                                                                                                                                                                                                                                                                                                                                                                                                           307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           247
 727
                                                                                                                                                                                                                              198
                                                                                                                                                                                                                                                            487
                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                           162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                                                          GluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLysPro
                                                                                                                                                         GluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArgArgGlyCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ||||||||:::||||:::|||GATTTTGGGGTCTGTGGGTATTTGTGCACATGCCAAAGTGCCACTGTTGGGTATTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATAGACGAATATGATGCGGTAGTCCTTTCTCCGGGGCCAGGACATCCGGCTGAAAGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGluArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeuPro
                                                              TATGGCAATGATACGCATGCTTTCTGGCTTGATAGTGAAAATTCTGATAGACCCAATGCC
                                                                                       LeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGluGlyAlaSer
                                                                                                                                                                                            CAGAATATATGTACTGATATCAATGAGGCTTATCTTGCAGTAGGTGGAAGACAAGATCTC
                                                                                                                                                                                                                                                                                           AlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHis------
                                                                                                                                                                                                                                                                                                                                             LeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIleMet
                                                                                                                                                                                                                                                                                                                                                                                        AAATGTACTGCATGATGATGATGATCATGGCAATTGAGCACACCGAAAGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTACATGGCTATCGCAGTCGCATCAGGAACACTGGAGAAGGATTGTTCCTCGGTTTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGluPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyValCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAAGTGACGGCAGTGTGCCGTAGTCACCAATTCTTTGACTTATGAAGAGTTAACG
CGCTTCTCAATGATGGGCAGCGGTAATGAACAAGGTGCTGTCAGACTTGAATACAGTGTA
                          ArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThrTyrArgVal
                                                                                                                              AACCTGAATTATCGTGAATGTAAGGAGATAGTCGATCCTGAATCCTTGTTTATTCAACGT
                                                                                                                                                                                                                                                            AGTAATTTCGTGCGGATAGCGGAGACGTATAAAGAGAATAATGAACAGGAAGTTACCGCT
                                                                                                                                                                                                                                                                                                                           ATCTGGGGGGTTCAATTTCATCCTGAATCGATTGATTCTGAATATGGGCCGTGAGCTACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAACAGTTTGAAGTGGTCAGATATCACTCGTTGGTATGTACCCGGTTGCCCGACAATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCGGTCATCAGGGGATTAACCTGGCATTTGGCGGCGTTGTAGAACATGCCCCCAATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2.57e-90
1400.50
57.76%
44.93%
39.20%
                                                                                                                                                                                                                           ------GlγAlaAspSerProTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (1-2019)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   522 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  580 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2019
301
86
246
37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        141
                            263
                                                                                              243
                                                                                                                                                                                                                                                                                                                           486
                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                         366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      186
                                                            726
                                                                                                                                                                                                                                                                                           197
                                                                                                                                                                                                                                                                                                                                                                                         426
                                                                                                                                                                                                                                                                                                                                                                                                                         161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      101
                                     Ş
                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                          뫄
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                           밁
                                                                                                     Ş
                                                                                                                                           밁
                                                                                                                                                                 S
                                                                                                                                                                                                          B
                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                DЬ
                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1126
                                                                                                                                           1639
                                                                                                                                                                                                            1579
                                                                                                                                                                                                                                                                            1519
                                                                                                                                                                                                                                                                                                                                                                                                          1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1024
                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr
                                                                                                                                                              AlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThr
                                                                                                                                                                                                                              AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                                                                                                                                                                                             GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu
                                                                                                                                                                                                                                                                                                                                                              GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                        TCACCAGAAACGTTTTACGTATTGATGACGCCAGAAATATTGAGTCCAGACCGATTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCAGTCCTGTACCTTATGGCGCTTATCTGGCCTGTGGGGGATTTTTCTGTACTCAGTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThrArgArgPro
               ACGATGGAGATTATTGATGCTTTAGAGTCATCGGCTCGTGGTG
                                           ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                                                                                              AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGl
                                                                                                                                           TCTTCTGTACATCAATTGGTTTCGACCATACGCGGTCAATTATGTGAAGAAACGTCATCC
                                                                                                                                                                                                            AATCAGGTATGTCGTCCAGGTAGTGTGCATGTACCTGAATTATTTAAAGTTGAGAGCTTC
                                                                                                                                                                                                                                                                            CAGTCTACTAAGGATAGGGCAGAAAATCTGATGATAGTGGACTTAGTGCGCCATGATCTT
                                                                                                                                                                                                                                                                                                                                          GGGACCCGGCCACGCGGAAAAACGGCAGCCGATGATCAGCATTTGCAGATGGAATTGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                  SerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATAGGGCCAAGATGACTTATTCAGGACATCCATTGGACGCCTTATCGGCGTGATGCGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGCCACATCAT-----TGGTCACCGGAACTTTTCGTTACCAATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTTTTGTCTTCGATCATCAGCAGAGTAAACTTTATGAATGTTTTATCACACCAATAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaIleAlaLeuAspHisGlnGluGlyCys-----CysTyrLeuLeuAlaLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTGGCAGCAACAATATCGTTCAGAACATCCTGATGCCAGCTTAATATTTACTCCGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPheAlaAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCATTGGTATTTAAAGGCGGGTTTGTTGGTTATTTAGGATATGAATTAAAGGCGCTGACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLysAlaGluThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTTTTCTCGCTGATGTCTCAGTTGCTTGATGTGGTGGCAATTTCGACACCAAAATCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAlaProGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGACTGAGAATTTGCGTTTGATCGGTCCTGATGGCGAGAGGATT---GTTCAGGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAAAATACCGGTGAAGTGATACCTGACTTTATTCCTGGCGCTGTTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     - ATTTGTCTGGAATATGGCGCTGAGAAATATATGGAT
                                                                                                yAlaProLysLysArg
                                               620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    400
                                                                                                                                                                                                            1638
                                                                                                                                                                                                                                                                                                                                                                            520
                                                                                                                                                                                                                                                                                                                                                                                                          1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1125
               1818
                                                                             1758
                                                                                                           600
                                                                                                                                           1698
                                                                                                                                                                            580
                                                                                                                                                                                                                                                                                                                                            1518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1023
```

560 1578 540 500

1278

1173

```
ADBOGGT?
ID ADBOG
XX 
The present invention describes an isolated polynucleotide (I) of CC Allolococcus otitidis genomic DNA, which encodes an antigenic protein. CC Allolococcus otitidis is a Gram-positive bacterium. Also described: (I) cC an isolated polypeptide that is encoded by the polynucleotide (I); (2) an isolated polypeptide that is encoded by the polynucleotide (I); its CC complement, degenerate variant or fragment; (3) a genetically engineered cC complement, degenerate variant or fragment; (3) a genetically engineered cC complement, degenerate variant or infected with the vector of (2); (6) an antibody specific for the polypeptide of (I); (5) an immunogenic composition comprising the polypeptide, its complement, biological cc equivalent or fragment, or the polypucleotide that is comprised in the CC expression vector; (6) a pharmaceutical composition comprising the expression vector; (6) a pharmaceutical composition comprising an array cof the polypeptides of (1), their biological equivalent or fragment; (8) immunising against Alloiococcus otitidis by administering to a host the contining the novel polynucleotide, its degenerate variant or fragment; (C) or the antibody of (4); and (I) producing and/or identifying Alloiococcus otitidis in the biological sample; (10) a kit comprising a container containing the novel polynucleotide, its degenerate variant or fragment, the polypeptides of cell under conditions suitable to produce the polypeptide from the culture. (I) can be used in gene therapy. The complement of the present convention can be used for treating and diagnosing diseases, drug conventions and monitoring of effects during and detecting Alloiococcus conventions and monitoring of effects during and detecting Alloiococcus conventions and monitoring of effects during and detecting Alloiococcus conventions and monitoring of effects during and detecting Alloiococcus conventions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New Alloiococcus otitidis polynucleotides and polypeptides, treating and diagnosing diseases, drug screening assays and effects during drug clinical trials.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alloiococcus otitidis; antigenic protein; immunog gene therapy; Gram-positive bacterium; infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29-NOV-2001; 2001US-0333777P
18-NOV-2002; 2002US-0426742P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (AMHP ) WYETH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25-NOV-2002; 2002WO-US036123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO2003048304-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alloiococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alloiococcus otitis antigenic protein encoding DNA SEQ ID NO:17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADB06077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7; SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADB06078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluGluPheThrGluThrValValLyBAla 670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATCAAGAGTGTGCTGAATTCGGCATTGGGGGGCAATTGTTGCTCATTCTGATCCTTAT 1938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATGGTTATCTTTCAGTGGTGAAGTGGAATTGAGCATTGTGATACGCACCGCGGTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          otitis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mcmichael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HOLDINGS CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17; 1019pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Russell DP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    immunogenic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zagursky
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             굔
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    immunisation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   monitoring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      얁
```

```
δ
                                              밁
                                                                        Ś
                                                                                                        유
                                                                                                                                ð
                                                                                                                                                                  밁
                                                                                                                                                                                             S
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-2 (1-686) x ADB06077 (1-2046)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               otitidis. The present sequence encodes protein from the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            М
::
                                                                                                                                                                                       217 GluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSer
                                                                                                                                                                                                                                                            197
                                                                                                                                                                                                                                                                                                                     177
                                                                                                                                                                                                                                                                                                                                                   496
                                                                                                                                                                                                                                                                                                                                                                                 157
                                                                                                                                                                                                                                                                                                                                                                                                                                         140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100 GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60 GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22
ThrThrArgThr---ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArg
                                                                                                                                   SerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAla
                                                                                                                                                                                                                                                        HisGlyAlaAspSerProTyrGluLeuHisValArgArgValAspValLeuProAspAla
                                             CACACCTTAAAATACGATGTCGACCAAAAAGGAGTGAAAAAACAAGATAGCCAGTCCGCA
                                                                        GluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThr
                                                                                                       AAGGTGGAGCCTGGCTTGTCACGGTTTTCCATCTTTGGCATGGCTGGACCAAAGCGGGGC
                                                                                                                                                                 CAAGACCTCTACGATCAATTGGCCAAAATTGATGACCAAGTACTTTGGCTCGACTCCAGC
                                                                                                                                                                                                                                                                                                                 GlyArgGluIleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArg
                                                                                                                                                                                                                                                                                                                                                  CACAAGACCAAGCCCATCTATGGGGTCCAATTCCACCCCGAATCCATTGCCACCCAGTAT
                                                                                                                                                                                                                                                                                                                                                                 HisArgGluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPhe
                                                                                                                                                                                                                                                                                                                                                                                                            GAATTAGAGAATATTCAAATCGATGCCAAAACCGATGATGGAATTGTCATGGCCCTGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                      GluLeuGluProLeu-----AlaTrpSerAspAspGlyValValMetGlyLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAsp 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCCCCATGCATGGTCGGCAGAGTTCGGTCTACCATAATGGGAAAAATATCTTTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTTGCCTGGGCCACCAGGGCATTTATTATTATAACGGTGGCAACTTAGTGGGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACAAGGACTTCGGCTTGTGCCGGCAAGTAATTGAAAAGCTTGACAAGCCTATCTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyGluAlaThrGlyGlnProProValValValProAsnAsp---AlaAspTrpSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HISTORAGE CATTATCGATAACTATGATTCTTATACTTACAACTTATACCAGCTTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                                                                                        GGGGAAAAATGÄTGGAAÄÄČTTTATGGCCTTGTGCCAGGACTACTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTATTGGATCTCGACTTTGATAATGTCATTATTTCACCGGGGCCCGGTAGTCCGGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGAAGGTCACAGGGAAAGAGCCCATGGTGATAAAAAATGACCAGATGACCTACCAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.03e-86
1350.00
58.71%
43.34%
37.78%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    597 A; 470 C;
                                                                                                                                                                                                                              - AACCAATCCAGCCTTTATTATGAAAAAGTTCCGGGAACTAGGGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ດ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                an Alloiococcus otitidis antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ή.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      u;
o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2046
296
105
248
34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Other,
                                                                                                                                                                                                                                                                                         .........
                 295
                                                                            276
                                                                                                                                     256
                                                                                                                                                                                                                                                                                                                                                                                 176
                                                                                                                                                                                                                                                                                                                                                                                                               495
                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141
                                                                                                                                                                  711
                                                                                                                                                                                              236
                                                                                                                                                                                                                              651
                                                                                                                                                                                                                                                          216
                                                                                                                                                                                                                                                                                        603
                                                                                                                                                                                                                                                                                                                     196
                                                                                                                                                                                                                                                                                                                                                  555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
```

```
1153
1858
                                                                                         1798
                                                                                                                                                                                   1738
                                                                                                                                                                                                                                                                                 1678
                                                                                                                                                                                                                                                                                                                                                                           1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1006
                                           635
                                                                                                                                       615
                                                                                                                                                                                                                                                                                                                                                                                                                         555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyTyrGluLeuLysAlaGluThrThrGly---AspProAlaHisArgSerProHisPro
                             | IleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleVal
                                                                                         ATCTATTCTGGGACTATTGGCTTTTTAGCCAACAATTCCACTATAGACTTCAACATCGTC
                                                                                                                         ValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVal
                                                                                                                                                                                                                       GlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGly
                                                                                                                                                                                                                                                                                 ATGGATGTAGAGACCTACTCCACCCTCCACCAGCTGGTTACCACGGTTTCAGGCCGGGTC
                                                                                                                                                                                                                                                                                                                                                                                                   PheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeu :::|||||||||::: ||||::: ||||:::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTCAAGTTCTTTCCTCTTCCATGGAGCGTTTTATTAATGTCGACAAGGACCGGGTTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATGAAGTTTGCTTGACCAACCGGCTGGATATTGAGGGTCAGATTGATGGCCTCGCTTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrGluIleCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAAGCAGCCTATATCAAAGACATTGAAACCATCCAAGACCTGATCAAGGCTGGGGAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCAAAGACAGGCTCAAG---CAGGCAGTCAAAGTTCAGCAAGAAGGA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrLeuLeuAlaLeuAspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATGCCTACTTTACTTATTGTGACCGGGCCTTGGTCTATGACCACCAGGAAGAGGACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCTATGAGGTCAAAAAAAGATACAGTTCAAGTCCACAACAAGCACCAGTCACCCTATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAATGGCCTTATGAGCCGGCCTTGCCCTTTGACTTTCAGCTAGGCTATATTGGCTATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeu
ATCCGGACCAGTGTGGAAGCAGACAAGGCAAGCATCGGCCTGGGGGGTGCGATTGTC
                                                                                                                                                                                   GGGGCGCCTAAAAAAAGAACCCTGGAAATTATTGATGACTTAGAAGCAGTTCCCAGAGGG
                                                                                                                                                                                                                                                                                                                           ArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCTTGCGCAATGATCTGGGCCGTTTTTGTGAAATCGGGTCGGTTGAGGTACCCAAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGATAGAAGGCCTCCGCAGTGAAGAGAAAACCAAGGCAGAAAACCTGATGATTGTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCACTAAGCCCATCAAGGGGACGGTCAGACGGGGGACAGATGACCAAGAAGACCAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TACAAACACTTGCGCCAGGAAAGTCCCGGTCAGTACTCTGCCTTTTTGCCTTTAGATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysAspAlaTyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValPheGlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCAGTTGAAAGCTTCCAGACTGACATCTTTTCTTACTTA----AAAGCCAACCGACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAAGAGGCAAGCAAGACTTCCCACGACTGGCCTTCGTCAAA---GAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----CAGGATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----CAGGATTGGATTCAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1377
                                                                                                                                                                                     1797
                                                                                                                                                                                                                                                                               1737
                                                                                                                                                                                                                                                                                                                                                                           1677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1005
                                                                                         1857
                                                                                                                                                                                                                                 614
                                                                                                                                                                                                                                                                                                                             594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  945
1917
                                           654
                                                                                                                                       634
```

밁 Ş 밁 S 밁 Ś 밁 Ś 밁 δ B Ś 밁 δ 밁 Ş 뮹 Ş 밁 δ 뭉 Ś 밁 Š

The present invention describes an isolated polynucleotide (I) of Allolococcus otitidis genomic DNA, which encodes an antigenic protein. Allolococcus otitidis is a Gram-positive bacterium. Also described: (I) an isolated polypeptide that is encoded by the polynucleotide (I); (2) a expression vector comprising the novel isolated polynucleotide (I), its complement, degenerate variant or fragment; (3) a generately engineered host cell, transfected, transformed or infected with the vector of (2); (4) an antibody specific for the polypeptide of (1); (5) an immunogenic

a genetically engineered with the vector of (2); (1); (5) an immunogenic

an

Example 3; SEQ ID NO 6651; 1019pp; English.

Вb Ş 밁

Š 밁

밁 Ş S 밁 밁 Š 밁

Š

```
밁
RESULT 14
ADB12064_00/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence split
                                                                                                                                                                                                                                                                                                                                        Fragment Name
ADB12064_00
ADB12064_02
ADB12064_03
ADB12064_04
ADB12064_06
ADB12064_06
ADB12064_07
ADB12064_07
ADB12064_10
ADB12064_10
ADB12064_11
ADB12064_11
ADB12064_11
ADB12064_12
ADB12064_13
ADB12064_15
ADB12064_15
ADB12064_16
ADB12064_16
ADB12064_16
ADB12064_17
ADB12064_17
ADB12064_17
ADB12064_17
ADB12064_17
ADB12064_17
ADB12064_17
ADB12064_17
                                                                                      New Alloiococcus otitidis polynucleotides and polypeptides, treating and diagnosing diseases, drug screening assays and effects during drug clinical trials.
                                                                                                                                                                         29-NOV-2001;
18-NOV-2002;
                                                                                                                                                                                                                                                                Alloiococcus otitidis; antigenic protein; immunogenic; immu gene; ds gene therapy; Gram-positive bacterium; infection; gene; ds
                                                                                                                          WPI; 2003-505284/47.
                                                                                                                                         Fletcher
                                                                                                                                                                                                  25-NOV-2002; 2002WO-US036123
                                                                                                                                                                                                                 12-JUN-2003
                                                                                                                                                                                                                                 WO2003048304-A2
                                                                                                                                                                                                                                                  Alloiococcus
                                                                                                                                                                                                                                                                                         Alloiococcus
                                                                                                                                                                                                                                                                                                          20-NOV-2003
                                                                                                                                                                                                                                                                                                                          ADB12064;
                                                                                                                                                         (AMHP)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1918
                                                                                                                                                         HIBAM
                                                                                                                                         LD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerLeuSerAspGlnGluGluGluPheThrGluThrValLysAlaArgAlaMetVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ICCGCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGCTATCTGATCCTGAAGAAGAGTTTGATGAAGTTGTTTTAAAAAGCTAAGGGGGCCCTTG
                                                                                                                                                                         2001US-0333777P
2002US-0426742P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           into
                                                                                                                                                                                                                                                  otitis.
                                                                                                                                                                                                                                                                                         otitis entire
                                                                                                                                                                                                                                                                                                          (first
                                                                                                                                                         HOLDINGS
                                                                                                                                         Mcmichael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          677
                                                                                                                                                                                                                                                                                                                                          DNA;
                                                                                                                                                                                                                                                                                                                                                 800001
900001
1000001
11000001
1200001
1300001
1400001
1500001
1600001
                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fragments
Begin
                                                                                                                                                                                                                                                                                                                                                                                                                                  200001
300001
400001
500001
600001
700001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10000
                                                                                                                                                         CORP
                                                                                                                                         űĊ,
                                                                                                                                                                                                                                                                                                                                          1754382
                                                                                                                                                                                                                                                                                         genome
                                                                                                                                         Russell
                                                                                                                                                                                                                                                                                                                                                          1610000
                                                                                                                                                                                                                                                                                                                                                                         810000
910000
1010000
1110000
1210000
1310000
13110000
1510000
                                                                                                                                                                                                                                                                                                                                                                                                                                           End
110000
210000
310000
410000
510000
610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rocus
                                                                                                                                                                                                                                                                                         sequence
                                                                                                                                         ₽₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADB12064 Accession
                                                                                                                                         Zagursky
                                                                                                                                                                                                                                                                        immunogenic; immunisation;
                                                                                                                                                                                                                                                                                         SEQ
                                                                                                                                                                                                                                                                                         IJ
                                                                                                                                                                                                                                                                                          NO:6651
                                                                                                                                         믾
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Adb12064
                                                                                                useful for monitoring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            674
                                                                                                 e
E
```

```
á
                                            밁
                                                                                                                                                           ફ
                                                                                                                                                                                                         문
                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
    ફ
                                                                                   5
                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-2 (1-686) x ADB12064_00 (1-110000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CC composition comprising the polypeptide, its complement, biological CC equivalent or fragment, or the polynucleotide that is comprised in the CC expression vector; (6) a pharmaceutical composition comprising the CC polypeptide of (1) and a carrier; (7) a protein chip comprising an array of the polypeptides of (1), their biological equivalent or fragment; (8) CC immunising against Alloicoccus otitidis by administering to a host the immunogenic composition; (9) detecting and/or identifying Alloicoccus otitidis in the biological sample; (10) a kit comprising a container CC containing the novel polynucleotide, its degenerate variant or fragment, CC or the antibody of (4); and (11) producing a polypeptide by culturing the CC genetically engineered host cell under conditions suitable to produce the CC polypeptide from the culture. (1) can be used in gene therapy. The CC containing assays and monitoring of effects during drug clinical trials. The polynucleotides are useful for expressing and detecting Alloicoccus otitidis. The present sequence represents the entire genome of CC alloicoccus otitidis, which is given in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1754382 BP; 484756A; 391265C; 387369G; 490992T; 0U; 00ther;
                                                                                                                                                                                                             7393
                                                                                                                                                                                                                                                                                           7447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7807
                                                                                                                                                                   157
        197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21 GlyGluAlaThrGlyGlnProProValValValProAsnAsp---AlaAspTrpSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                       GAATTAGAGAATATTCAAATCGATGCCAAAACCGATGATGGAATTGTCATGGCCCTGTCC
                                                                                                                                                                                                                                  GluLeuGluProLeu-----AlaTrpSerAspAspGlyValValMetGlyLeuArg 156
                                                                                                                                                                                                                                                                                                                                                                                               GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
  HisGlyAlaAspSerProTyrGluLeuHisValArgArgValAspValLeuPrpAspAla
                                                                           GlyArgGluIleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArg
                                                                                                                                                         HisArgGluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPhe 176
                                                                                                                                                                                                                                                                                      LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAsp
                                                                                                                                                                                                                                                                                                                                                                      ATCCCCATGCATGGTCGGCAGAGTTCGGTCTACCATAATGGGAAAAATATCTTTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
:::|||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACAAGGACTTCGGCTTGTGCCGGCAAGTAATTGAAAAGCTTGACAAGCCTATCTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTATTGGATCTCGACTTTGATAATGTCATTATTTCACCGGGGCCCGGTAGTCCGGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGAAGGTCACAGGGAAAGAGCCCCATGGTGATAAAAAATGACCAGATGACCTACCAAGAA
                                            GGGGAAAAATGATGGAAAACTTTATGGCCTTGTGCCAGGACTACTAT--
                                                                                                                           CACAAGACCAAGCCCATCTATGGGGTCCAATTCCACCCCGAATCCATTGCCACCCAGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTTGCCTGGGCCACCAGGGCATTTATTATTATAACGGTGGCAACTTAGTGGGGGCTGAT 750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.09e-84
1350.00
58.71%
43.34%
37.78%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    110000
296
105
248
34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7628
                                                                                                                                                                                                                                                                                                                              139
                                                                                                                                                                                                                                                             á
                                                              밁
                                                                                                                                            밁
                                                                                                                                                                              S
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . 닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6943 AAATGGCCTTATGAGCCGGCCTTGCCCTTTGACTTTCAGCTAGGCTATATTGGCTATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7177 CAAGACCTCTACGATCAATTGGCCAAAATTGATGACCAAGTACTTTGGCTCGACTCCAGC
PheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeu
:::|||||||||::: ||||||||::: |||||:::
                                                                                   LeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeu
                                                                                                                                                                                                                          ACCACTAAGCCCCATCAAGGGGGACGGTCAGACGGGGGGACAGATGACCAAGAAGACCAAGAC
                                                                                                                                                                                                                                                   GluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArg
                                                                                                                                                                                                                                                                                                   TITCAAGTTCTTTCCTCTTCCATGGAGCGTTTTATTAATGTCGACAAGGACCGGGTTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ||||||:::|||||||||||| :::
TATGAAGTTTGCTTGACCCAGCCTGGATATTGAGGGTCAGATTGATGGCCTCGCTTAT
                                                              CTCTTGCGCAATGATCTGGGCCGTTTTTGTGAAATCGGGTCGGTTGAGGTACCCAAACTG
                                                                                                                                            TTGATAGAAGGCCTCCGCAGTGAAGAGAAAACCAAGGCAGAAAACCTGATGATTGTCGAC
                                                                                                                                                                                LeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAsp
                                                                                                                                                                                                                                                                                                                                     LeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyVal
                                                                                                                                                                                                                                                                                                                                                                                       TACAAACACTTGCGCCAGGAAAGTCCCCGGTCAGTACTCTGCCTTTTTGCCTTTAGATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                           TyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TyrGluIleCysLeuThrAsnMetValThrÅlaProThrGluAlaThrAlaLeuProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ANAGCAGCCTATATCANAGACATTGAAACCATCCAAGACCTGATCAAGGCTGGGGAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LysaspalaTyrLeuLysargIleaspGluCysLeuLysGluIleargAsnGlyGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCAAAGACAGGCTCAAG---CAGGCAGTCAAAGTTCAGCAAGAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrLeuLeuAlaLeuAspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATGCCTACTTTACTTATTGTGACCGGGCCTTGGTCTATGACCACCAGGAAGAGAGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrThrArgThr---ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACACCTTAAAATACGATGTCGACCAAAAAGAAGTGAAAAAACAAGATAGCCAGTCCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----AACCAATCCAGCCTTTATTATGAAAAAGTTCCGGGAACTAGGGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValPheGlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAGTTGAAAGCTTCCAGACTGACATCTTTTCTTACTTA-----AAAGCCAACCGACCA 694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGGTGGAGCCTGGCTTGTCACGGTTTTTCCATCTTTGGCATGGCTGGACCAAAGCGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCAAGAGGCAAGCTTCCCACGACTGGCCTTCGTCAAA---GAC
                       574
                                                                                                                                                                                                                          6332
                                                              6212
                                                                                                    554
                                                                                                                                            6272
                                                                                                                                                                                                                                                                                                       6392
                                                                                                                                                                                                                                                                                                                                               494
                                                                                                                                                                                                                                                                                                                                                                                       6452
                                                                                                                                                                                                                                                                                                                                                                                                                               474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   256
```

á 밁 Ş

무 Ş 밁 Ş 밁 S 문 á

밁

```
RESULT 15
ADB95077
ID ADB95
XX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Levin ...,
Tossberg J, Wey
                           The invention relates to a method for identifying a herbicidal compound. The method of the invention comprises combining a polypeptide having at least 90% identical to any one of 48 69-1008 residue amino acid sequences (designated as P1-P48), given in the specification, with a compound to be tested for the ability to bind to the polypeptide or inhibit the activity of the polypeptide, under condictions conducive to binding or inhibiting, respectively. Also disclosed is a method for killing or inhibiting the
                                                                                                                                                                                                                                                                                                                                                  Identifying an herbicidal compound, useful for controlling undesirable vegetation, comprises combining a polypeptide with a compound to be tested for the ability to bind to the polypeptide or inhibit the activities of the activi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO2003008440-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A. thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     04-DEC-2003
                                                                                                                                                                                                                                                                      Example
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16-JUL-2001; 2001US-0305806P
20-FEB-2002; 2002US-0358416P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30-JAN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADB95077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (SYGN )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16-JUL-2002; 2002WO-EP007929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6031
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2003-229557/22.
DB; ADB95078.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                615
         or viability
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               herbicide; weed;
                                                                                                                                                                                                                                                                                                                          polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SYNGENTA PARTICIPATIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCGCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGCTATCTGATCCTGAAGAAGATTTGATGAAGTTGTTTTAAAAAGCTAAGGGGGCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerLeuSerAspGlnGluGluPheThrGluThrValValLysAlaArgAlaMetVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCTATTCTGGGACTATTGGCTTTTTAGCCAACAATTCCACTATAGACTTCAACATCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThr
:::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGGATGTAGAGACCTACTCCACCCTCCACCAGCTGGTTACCACGGTTTCAGGCCGGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCCGGACCAGTGTGGTGGAAGCAGACAAGCATCGGCCTGGGGGGGTGCGATTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patton DA, Mcelver JA, Wegrich Glover L, FDunn J, Cates E, Law
                                                                                                                                                                                                                                                                      SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene 55483 #SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first
                                                                                                                                                                                                                                                                      ij
                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entry)
      of a plant by applying to the plant the herbicidal
                                                                                                                                                                                                                                                                   75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mcelver JA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  crop field;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2760
                                                                                                                                                                                                                                                                273pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ashby CS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₩
₩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Budziszewski GJ,
bv CS, Thomas CR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            growth;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               development; gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zhou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zhou Q, 1
Madhaven
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ħ
                                                                                                                                                                                                                                                                                                                                                        be
activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               614
                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                               밁
                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-2 (1-686)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  compound identified by the novel method, a chimeric construct comprising a promoter operatively linked to the nucleic acid molecule, a recombinant vector comprising the chimeric construct and a host cell comprising the nucleic acid molecule. The method and polypeptides are useful in screening assays to identify compounds that interact or inhibit the polypeptides, thus as potential herbicides to control undesirable regetation such as weeds in crop fields. Nucleic acid molecules (odd numbers between ABB95003 and ABB95097) isolated from Arabidopsis thaliana comprising nucleotide sequences that encode proteins (even numbers between ABB95004-ABB95098) are essential for plant growth and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Мо.:
                                                                                                                                                                                                                                        148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyThrValGlyLeuAlaProGluProMetHisGlyArgValSerGluValArgHisThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerGlyLeuProValLeuGlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAAGCTTACCATTACTTATATGAAGATGTTGCTTTTGATAATATTGTTATATCGCCTGGA
PheGlyArgGluIleMetAlaAsnPheArgAspLeuAlaLeuAlaHis----
                                                            ATGCATTCTTTCTCCCCATTATGGTTTACAGTTTCATCCAGAAAGTATTGCTACCA
                                                                                                                  ArgHisArgGluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAsp
                                                                                                                                                                                                                                                                                                 ACTGGGAGCCCACTTGGGAACGGATCTGTCATTCCTGTTTCAGAAAAGTTAGAAAATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACCATTCACTGATCATAGATAAGGAATCACTACCAAAAGGAACTTGTACCAATAGCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGAACATATTGTTTTCTGATATTCCCATCCGGGAGAAACTCTGATTTTAAGGTTGTTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyGluAspValPheArgGlyLeuPro------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGGTTCGCCTATGTGTCCAGCTGATATAGGAATATGTCTTCGTCTTTTGCTTGAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProGlySerProAspArgGluArgAspPheGlyIleSerArgArgAlaIleThrAsp---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGTACTATTAATĠĠÁGTGĊĊŤĊĊŤĠŤĊĠŤŤATTCGGÁÁŤĠÁŤ--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSer----
                                                                                                                                                                            AGTCATTGGCCTTCGTCCCATGTTAATGGGAAACAAGATAGACACATTCTCATGGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                              ACGATTTATGATGACACTGGCTCTTTCTCTGAGAAGAATTCCTGTGTTCCTGTGAATAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrHisSerLeuAla-----AlaThrAspLeuProAspGluLeuGluProLeuAlaTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTCATGTGGTGCATGCCCCGGAACCAGTCCATGGACGGTTGAGTGGGATTGAACATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTGATATCCCAATTCTAGGCGTCTGCCTTGGCCACCAGGCACTAGGTTATGTCCATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --ArgLeuProValGluAsp-----PheAspAlaIleValValSerProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1288.00
50.48%
36.79%
36.05%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        x ADB95077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.83e-82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; 492
                                                                                                                                                                                                             -----AspAspGlyValValMetGlyLeu
-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-2760)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2760
309
115
238
178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerProPheThrAlaValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -GAGTGGACGTGGGAA
```

369

38

312 20

429 53

489 72

175

909

191

849

147

789 147

729 146 669

609 112 549 92

128

8 8 8 8 8 8 8 8 8 8

8 8 8 8

음 성 음

중 유

B &	B 6	g Q	B 8	B 8	B 8	B 8	B 8	B 8	₽ &	B 64 B
658 As 2668 Ac	638 IJ 2608 GJ	618 GI 	598 L ₃ 2488 A <i>3</i>	578 T) 2428 A:	558 GI 	538 As 2308 AJ	518 At 2248 C	498 PJ 2188 CX	478 Le 2128 To	2008 A(460 A) 2068 GJ
pGlnGluG] :: TCCAGAAG <i>I</i>	eValLeuAl ::::::: 'AATAATAC <i>I</i>	YAlaLeuGl ::::: CTCAATCGC	'SLYSATGTI :: ACTAAGATO	rSerThrAl TAGTCCAGI	.uThrTyrA] ::: ATCATACAC	nAspLeuAs TGATCTCGC	pLeuAlaGI ATTGAAACT	OIleLysG! GATTAAGGO	uSerAlaSe ::: CTCTTCGTO	TCAAAACAC .aIleSerPı .::: .GAGGAATCC
.uGluPheTh : .TGAGTTTG!	.aAspGlyGl ::: .TGAAGATG <i>I</i>	YTrpPheAl ::: :: GTATTTCTO	rMetGluI] :::: TGTTGAGAI	.aAlaCysVa .GGAATGTGT	.aProValHi !AACAGTAC!	nservalcy rcgrgrcro	YArgGluLy CAGTGAGAJ	YThrarge	ProGluA CCCTGAAA	BAAGGAAAAT COVALPIOTY CAGCACCATI
AspGlnGluGluGluPheThrGluThrValLysAlaArgAlaMetValThrAlaLeu :::	IleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSer:::::::::::::::::::::::::::::::::::	GlyAlaLeuGlyTrpPheAlaLeuSerGlyÁlaAlaAspLeuSerIleValIleArgThr ::::: :::	LyBLyBArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSer 	ThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaPro	GluThrTyralaProValHisGlnLeuValŚerThrIleArgGlyArgLeuArgProGly 577 ::: :::	AsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluVal	AspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArg 	ProlleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAla	LeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLys ::: ::: TGCTCTTCGTCCCCTGAAAGGTTTCTTAAGCTGGACAGAAATGGAATGCTTGAAGCAAAG	ACTCAAAACAGAAGGAAAATAGGAAATGCTĠATCCTTTGGGACTTTATCTCCACCTGAGA 2067 AlaileSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerVal 477 :::
llvalLysal ::::: !TCTTAAGA(neĠlyValGi TGGAGCAG	LYÁLAALAA:	gLeuGluG TCTAGAGAJ	LaPheProGI TTTCCCTG	alśerThrI GAGCACGA:	lySerValH CȚCAGTCC	laGluAsnLo CGAGAATC	lyThrAlag: CACGCCTG	nrIleGlyA: ::: AGCTGGACA	eu Garcett eu Leu Glupi ereteaaet
laArgAlaM TAGAGCTC	lyGlyAlaI BAGGAGCTA	SpLeuSerI ::: ATCTGAATA	luGlyProA: \ \CTGTTCGA	lyGlySerM GGGTTCAA	leArgGlyA CCGTGGAC	isValProA \TGTACCTA	euMetIleV GATGATTG	luGluAspG \AGAAGATG	laAspGlyG ::: 3AAATGGAA	IGGGACTTT. neP I CTCAAATG
etValThrA CTGCTAATG	leValSerL ::: TGTTGCAT	levalileA TGTGATAA	rgGlyValT ::: GAGGCCTTT	etThrGlyA GACTGGTG	rgLeuArgP ;;; IGAAAAAA	rgLeuPheG accTcATGG	alAspLeuV : TGACCTTC	luArgLeuA : AATTTCTTA	lyvalGlus ::: : rgcTTGAAG	ATCTCCACC roGluLeuS
					roGly 5			rgAla : :: AATTG :		TGAGA : erval 4
677 2727	657 2667	637 2607	617 2547	597 2487	577 2427	557 2367	537 2307	517 2247	497 2187	2067 477 2127

Search completed: October 5, 2005, 10:48:02 Job time: 1745.67 secs

ş

8 8 8 8

음 성 음 성

용 성 용

ठ

음 성 음

This Page Blank (uspto)

```
Regult
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -MODEL-frame+ p2n.model -DEV=xlh
-Q=/cgn2_1/USPTO_spool_h/US10089514/runat_04102005_105746_8071/app_query.fasta_1.1621
-DB=15sued_Patencs_NA -QFMT=fastap -SUFFIX=rni -MINMATCH=0.1 -LOODCL=0
-LOODEXT=0 -UNITS_EDite STRAT=1 -END=-1 -MATRIX=blosum62 -TRANS=bluman40.cdi
-LIST=45 -DOCALIGN=200 -THR SCORE-pct -THR MAX=100 -THR MIN=0 -ALIGN=15
-MODE-LOCAL -OUTFMT=pto -NORM=ext -HEAPSIZES=500 -MINLEN=0 -MAXLEX=2000000000
-USER=US10089514_@CGN_1 1_116_@runat_04102005_105746_8071 -NCPU=6 -ICPU=3
-NO MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Command line parameters:
                                                      O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  92:
        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
1816
1096.5
1096.5
725.5
623.5
623.5
615
578.5
578.5
570.5
                                                                                                                                                                                                                                                                                                         1816
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Xgapop 10.0,
Ygapop 10.0,
Fgapop 6.0,
Delop 6.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Issued_Patents_NA:*

1. /cgn2_6/ptodata/1/ina/5A_COMB.seq:*

2. /cgn2_6/ptodata/1/ina/5B_COMB.seq:*

3. /cgn2_6/ptodata/1/ina/6A_COMB.seq:*

4. /cgn2_6/ptodata/1/ina/6B_COMB.seq:*

5. /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*

6. /cgn2_6/ptodata/1/ina/backfiles1.seq:*
                                                                                                                                                                                                                                                                                                                                                          Match
                                                                                                                                                                                                                                                                                                                                                                                      Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-2
3573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  October
  50.8
50.8
30.7
30.7
20.3
17.5
17.5
117.2
116.2
116.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1202784 ведв,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Maximum Match 100%
Listing first 45 su
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MRTLLIDNYDSFTHNLFQYI....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Copyright
  4403765
4411529
                                                                                                                                                                                                                                                                                                                                                          Length
                                                      2220
2220
4496
4496
2888
2888
7760
1308
1431
1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5, 2005, 10:07:08; Search time 375.417 Seconds (without alignments) 2989.973 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.6 (c) 1993 - 2005 Compugen
                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        818138359 residues
                                                US-08-765-907A-14
US-09-987-614A-14
US-09-987-614A-6
US-09-987-614A-6
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
                                                                                                                                                                                                                                                                                                                                                             吕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          summaries
                            US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .....VVKARAMVTALDGSAVAGAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2405568
                 Sequence 14, Appl Sequence 6, Appli Sequence 6, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 203, Appli Sequence 2203, Appli Sequence 13733, A Sequence 27, Appli Sequence 2, Appli Sequen
                                                                                                                                                                                                                                                                                                                                                          Description
                            Query Match:
DB:
                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                      Score:
                                                                                                                                                                   Pred
                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                             US-08-765-907A-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-765-907A-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn
SEQ ID NO 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: BLANC,
APPLICANT: THIBAU
APPLICANT: BAMAS-
APPLICANT: BLANCH
APPLICANT: COUZET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 14,
Patent No. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                LENGTH: 2220
                                                                                                                                                             No.:
```

Sequence	US-09-264-854-	4.	2161	12.0	430	45
Sequence	-100-60-311	^ ^	2161	3.0	4400	A 4 A A
<u>ن</u>	US-09-001-826-4	N	2161	12.0	430	. μ
Sequence	US-09-264-854-2	4.	1650	•	433	42
Sequenc	US-09-001-	N	1650	•	433	41
Seguenc	US-09-486-382B-	ω	1821	•	434.5	40
Sequenc	US-09-486-382B-	ω	1734	•	437.5	39
Sequenc	US-09-486-3828-	w	1734	•	438.5	38
Sequenc	g	ω	3065	•	439	37
Sequenc	ä	w	13926	•	449.5	36
Sequenc	ä	4	1725	•	449.5	35
Sequenc	덡	4	1722	•	449.5	34
Sequenc	ĕ	4	2694		457.5	ω ω
Sequenc	뎚	4	1464	•	465	32
Sequenc	ĕ	4	1464	•	465	4
Sequenc	ä	ω	10357		468	30
Sequence	_	4	5		474	29
ŕo	4 US-08-916-421B-1	4	~		474	28
Se	ᅜ	4.	1473		485.5	27
Sequenc	ä	4	49617		487.5	26
Sequenc	ផ្ល	4	1542		487.5	25
Sequenc	ä	4	54484		494	24
Sequenc	US-09-328-352-1856	4	1392		494.5	23
Sequenc	US-09-543-681A-3936	4	1428	•	509	22
Sequence	ŭ	4	2079		510	21
S	ជ	4	816		548.5	20
Sequenc	ä	4	1518		550	19
Sequenc	ជ	4	645	•	556	18
Sequenc	ä	ω	645	•	556	17
Sequenc	Ę	ω	645		556	16
Sequenc	ជ	2	645	15.6	556	15
Sequenc	SU	4	1503		558	14
Se	US-09-252-991A-811	4	1506	15.8	563	13

ALIGNMENTS

```
TITLE OF INVENTION: Streptogramins And Meth
TITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
                                                                                                                                                                                                                                                                                                                   APPLICANT: FAMECHON, Alain
APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, G
                                                                                                                                    TYPE: DNA ORGANISM: Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                               BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Application US/08765907A
                                                                                                                                                                                                                                                                                                                                                                                                COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                            THIBAUT, Denis
BAMAS-JACQUES, Nathalie
BLANCHE, Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Veronique
3.33e-177
1816.00
64.03%
53.47%
50.83%
                                                                                                                                                                                                                                                                                                                    Gilles
                                                             Length:
Matches:
                            Conservative:
Mismatches:
Gaps:
                Indels:
                                                                                                                                                                                                                                                                                                    Method For Preparing Same
2220
385
76
207
52
```

\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	US-10-C Qy Db Oy Qy Db
79 GlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAla 98 79 GlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAla 98 71 GGGTGCCCCCCGCCCCCCCCCCCCCCCCCCCCCCCCCC	1 MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAspLeuPheGlnTyrIle 20 :::
9 2 9 2 9 2 9 2 9 2 9 2 9 2 9 2 9 2 9 2	
1321 CTGCCCGACGACGACTGCCCCCGCCCTGGAC	334 ProAspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCys 353

```
APPLICANT: DUTRUC-ROSSET, Gilles
APPLICANT: DUTRUC-ROSSET, Gilles
ITITLE OF INVENTION: Streptogramins and Method For
ITITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
(CURRENT APPLICATION NUMBER: US/09/987,614A)
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR APPLICATION NUMBER: US/08/765,907
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 14
LENGTH: 2220
TYPE: DNA
COCCANTICAL. STREET ONLY OF SERVICE STREET S
        δ
                                             В
                                                                                      ş
                                                                                                                                 맑
                                                                                                                                                                  ş
                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-2 (1-686) x US-09-987-614A-14 (1-2220)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-987-614A-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-987-614A-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 14, Application US/09987614A Patent No. 6833382 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: BAWAS-JACQUES, I
APPLICANT: BLANCHE, Franci
APPLICANT: COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Streptomyces
        159
                                                                                                                                                                                                                                                                                                   310
                                                                                                                                                                                                                                                                                                                                                                                     250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     190
                                                                                                                                                                                                                                                                                                                                          79
                                                                                                                                                                                                                                                          99
                                                                                                                                                                                                                                                                                                                                                                                                                          59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70
    GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg
                                             GCCGACCTGCGCGACCGCCACACCGCGACGGCAGCTGATGGCCGTCGCCCACCGC
                                                                                                                                                                                                                                             ProGluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArg 118
                                                                                                                                                                                                                                                                                                                           GlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                    ArgGluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeu
::: ||| ||||:::||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgLeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyGluAlaThrGlyGlnProProValValValProAsnAsp-----AlaAspTrpSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MetArgThrLeuIeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                               AACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCC
                                                                                                                                                                  GlyLeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuPro
                                                                                                                                                                                                               CCCGAACCCTTTCACGGCCCACCAGCGACATCCGCCACGACGGCCAGGGCCTGTTCGCG
                                                                                                                                                                                                                                                                                                                                                                                   ACCGACACCGACCTGGGCCTCAGCCGGCTGATCACCGAATGGGACCTGCCGCTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCTGGCGCCGGGCGACTTCGACAACGTCGTCGTCTCACCCGGCCCCGGCCACCCCGCC 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGAGGTGAACGGCGCCGCTCCGCTCGTCGTCGCAACGACGACACCCCGCACCTGGCAG
                                                                                    AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg
                                                                                                                                                                                                                                                                                                 GGGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCTCGCCGGCGCCCGTCGTCCACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          THIBAUT, Denis
BAMAS-JACQUES, Nathalie
BLANCHE, Francis
COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.33e-177
1816.00
64.03%
53.47%
50.83%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      For Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2220
385
76
207
52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      βĀ
                                                                                      156
                                                                                                                               489
                                                                                                                                                                                                                                                                                                                                        98
                                                                                                                                                                                                                                                                                                                                                                                 309
                                                                                                                                                                                                                                                                                                                                                                                                                        78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     129
                                               549
                                                                                                                                                                                                                 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                밁
                                                                                               5
                                                                                                                                                  문
                                                                                                                                                                                 á
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1201 GCCTGGCTCCTGGCACTGAGCAGCACCGGACGGCCACCGCACCGGCCGCCGAACGC 1260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1024
                                                                                                                                                                                         446
486 LeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLysGlyThrArgProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     256 AlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     550
                                                                CCCGGCCGGATCGACCCGCTCACCGCCTACCGCGCCTGCGCACCGTCAGCCCCGCCCCC
                                                                                                                                                                        ProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSerProValPro
                                                                                                                                                                                                                                     CGCCGCCTGATCACCGACGGCGAGACCTACGAGGTGTGCCTGACGAACATGCTCCGGGTG
                                                                                                                                                                                                                                                        -----GTCCACTACCGCCACAGCCTGCCCCGCTACCGGGAACTGGTCGAGGAATGC
                                                                                                                                                                                                                                                                                                                                                                                                    CTGCCCGACGACTGCCCGCCCTGGAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaProAlaGluProThrProAlaMetValPheGlyIleProGluAlaAlaAlaGlyPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TrpLeuArgGluThrAlaGluThrLeuThrGlyLeuAlaValArg------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CysTyrLeuLeuAlaLeuAsp------ArgArgGlyHisAspAspGlyAlaArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProAspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCys 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCAGGCGGCGAGACCCGGCCGGCACCCTCTTCGACCACCTGGAACACGAACTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrThrThrArgThrArgArgPro----PhePheAsnTyrLeuGluGluGlnLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGCCGCGTCGAGCCGGCCTCGCCCGCTTCACCTTCCTCGGCGCCCCCCCGCCGGCCCGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaGluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaArgArgHisGlyAlaAspSerPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluIleMetAlaAsnPheArgAspLeuAlaLeu----AlaHisHisArg------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACCTGCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCAC
                                                                                                                                                                                                                                                                                                                                                         GlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLysArgIleAspGluCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTGCGCGTCAAG-----GACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGGACGCCGCTTCACCGCCCTGTTCGCCGACGCCCCGGCCCGGTTCTGGCTCGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----TyrGluLeuHisValArgArgValAspValLeuProAsp
                                                                                                            485
                                                                                                                                                                                                                                     1461
                                                                                                                                                                                                                                                                           445
                                                                                                                                                                                                                                                                                                                     1401
                                                                                                                                                                                                                                                                                                                                                                                                    1350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1023
                            505
                                                                     1581
                                                                                                                                                                                           465
                                                                                                                                                                                                                                                                                                                                                           425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          202
```

```
Ф
   Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                     Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
US-08-765-907A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: BAMAS-JACQUES, Nathalie
APPLICANT: BLANCHE, Francis
APPLICANT: COUZET, Joe1
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: DEBUSSCHE, Laurent
                                                                                                                                    US-08-765-907A-6
                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 17
SOFTWARE: PatentIn Ver. SEQ ID NO 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 6, Application Patent No. 6352839 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                             APPLICANT: PARIS, Jean Marc
APPLICANT: DUTRIC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And
TITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
                                                                                                                                                                                                                                            FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                              TYPE: DNA
ORGANISM: Streptomyces
                                                                                                                                                                                 LENGTH: 4496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1642
                                                                                                                                                                                                                                                                                                                                                            BLANCHE, Francis
COUZET, Joel
BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGCTCCTCAAGGCGCAGACCACCCTCGCCGCCCTG---CGCCAGGCACACGCGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySerAlaValAlaGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCATCGGCGTGGGCGCGCCGTCGCCCTGTCCGACCGACGACGACGAGGTCCGCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPheThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeuAlaAspGlyGlnAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGCCTTCCCCGGCGGTCGATGACCGGCGCGCCCAAGGTCCGCATGCAGTTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAlaCysValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleGlySerValHisValProArgLeuPheGluValGluThrTyrAlaProValHisGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeuAsnSerValCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGCGGCGGCCGACCTCAGCATCGTCATCCGCACCATCGTCGCCACCGAGGAGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCGGCTCCGTCCACGTACCGGGCCTGTTCGAGGTGGAGACCTACGCCACCGTCCACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCAGCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTCGGCCAGGTCTGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGCGCATCGGCGCGGACGGTTGGGCCGGAGTCCAAACCCATCAAGGGCACCCGCCCCCCC
     2.33e-102
1096.50
57.91%
46.64%
30.69%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08765907A
                                                                                                                                                 pristinaespiralis
                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                               Method
                                                                                                                                                                                                                                                                                                               For
                                                                                                                                                                                                                                                                                                               Preparing
   4496
236
57
162
51
                                                                                                                                                                                                                                                                                                               βy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  585
                                                  뫄
                                                                             8
                                                                                                                뫄
                                                                                                                                       8
                                                                                                                                                                              망
                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                             뮍
                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-2 (1-686) x US-08-765-907A-6 (1-4496)
                                                                                                                                                                                                                                                                                                                                                                            3687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3267
                  314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21 GlyGluAlaThrGlyGlnProProValValValProAsnAsp-----AlaAspTrpSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle :::|||||||||||||| :::
                                                  GCCCGCGCCTGCCC---GCCACCGGCCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGC
                                                                                                                                                                          GCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTGCGCGTCAAG-----GACGGT
                                                                                                                                                                                                                                                                                                                                    AlaGluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSer
||||...
                                                                                                                                                                                                                                                                                                                                                                           GluIleMetAlaAsnPheArgAspLeuAlaLeu-----AlaHisHisArg------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGACCTGCGCGCCACCGCCCACACCGCCGACGGGCAGCTGATGGCCGTCGCCCACCGC
TyrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyLeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCCGAACCCTTTCACGGCCGCACCAGCAGCGACATCCGCCACGACGGCCAGGGCCTGTTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCGACACCGACCTGGGCCTCAGCCGCCGGGTGATCACCGGATGGGACCTGCCGCTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCTGGCGCCGGCGACTTCGACAACGTCGTCGTCTCACCCGGCCCCGGCCACCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGCGAACCCTGCTGATCGACAACTACGACTCGTTCACCTACAACCTCTTCCAGATGCTG
                                                                    ArgArgArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGly
                                                                                                                 TCAGGCGGCGAGACCCGCCGGCCCGGCACCCTCTTCGACCACCTGGAACACGAACTGGCC
                                                                                                                                       ThrThrThrArgThrArgArgPro-----PhePheAsnTyrLeuGluGluGlnLeuGlu
                                                                                                                                                                                                     AlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGly
                                                                                                                                                                                                                                             SerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeu
                                                                                                                                                                                                                                                                                                               GCGGACGCCGCGTTCACCGCCCTGTTCGCCGACGCCCCGGCCCGGTTCTGGCTCGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                         AlaArgArgHisGlyAlaAspSerPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProGluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCTCGCCGGCGCCGCCGTCGTCCACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ArgGluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgLeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGAGGTGAACGGCGCCGCTCGCTCGTCGCCAACGACGACACCCGCACCTGGCAG
                                                  4037
                                                                                                                                                 293
                                                                                                                                                                               3920
                                                                                                                                                                                                             275
                                                                                                                                                                                                                                               3866
                                                                                                                                                                                                                                                                                                             3806
                                                                                                                                                                                                                                                                                                                                                                              3746
                                                                                                                                                                                                                                                                                                                                                                                                           215
                                                                                                                                                                                                                                                                                                                                                                                                                                            3686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3146
                                                                                                                                                                                                                                                                             255
                                                                                                                                                                                                                                                                                                                                             235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
```

```
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method
TITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: PATENTIN Ver. 2.0
SOFTWARE: PATENTIN Ver. 2.0
LENGTH: 4496
                         Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 4
US-09-987-614A-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                              Pred. No.:
                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
 US-10-089-514-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 6, Application Patent No. 6833382 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: BLANC,
APPLICANT: THIBA
APPLICANT: BAMAS
APPLICANT: BLANC
                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
                                                                                                                                     -09-987-614A-6
                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                             TYPE: DNA
ORGANISM: Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PARIS, Jean-Marc
DUTRUC-ROSSET, Gilles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TACGCCGCCTACCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCGGCCGGATCGACCGCCTCACCGCCTACCGCGCCCTGCGCACCGTCAGCCCCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSerProValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCGCCTGATCACCGACGCGAGACCTACGAGGTGTGCCTGACGAACATGCTCCGGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLysArgIleAspGluCys 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaProAlaGluProThrProAlaMetValPheGlyIleProGluAlaAlaAlaGlyPhe 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGGCTCCTGGCACTGAGCAGCACCCGACGGCCGCCACCGCCACCGCCGCCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CysTyrLeuLeuAlaLeuAsp-----ArgArgGlyHisAspAspGlyAlaArgAla 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProAspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrGlyAlaLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTGCCCGACGACCAACTGCCCGCCCTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TrpLeuArgGluThrAlaGluThrLeuThrGlyLeuAlaValArg---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGACGGCCTTCATGTTCGCCGACCGATGCTCGCCCTCGACCACGAACAGGGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                       THIBAUT, Denis
BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------GTCCACTACCGCCACAGCCTGCCCCGCTACCGGGAACTGGTCGAGGAATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLANCHE, Fra.
COUZET, Joel
 (1-686)
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Veronique
                                     2.33e-102
1096.50
57.91%
46.64%
30.69%
x US-09-987-614A-6 (1-4496)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/09987614A
                                                                                                                                                  pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 471
                      Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                Method For Preparing Same
                         4496
236
57
162
51
                                                                                                                                                                                                                                                                                                                  βĄ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            385
                             á
                                                                밁
                                                                                  δ
                                                                                                             뫄
                                                                                                                                          5
                                                                                                                                                                          밁
                                                                                                                                                                                             δ
                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                     뭐
                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
           4038
                                                                                                                                                                                                                                                                                       3747
                                                                                                                                                                                                                                                                                                                                             3687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        216
                                                                                                                                                                                                                                                                                                                                                                                                                             194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     59
           TyrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHis
                                                                                 ArgArgArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGly
                                                                                                                 TCAGGCGGCGAGACCCGGCCGGCACCCTCTTCGACCACCTGGAACACGAACTGGCC
                                                                                                                                                                                                 AlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGly
                                                                                                                                                                                                                               SerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluIleMetAlaAsnPheArgAspLeuAlaLeu-----AlaHisHisArg------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyLeuProSerProPheThrAlaValArgfyrHisSerLeuAlaAlaThrAspLeuPro 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCTGGCCCGGCCACTTCGACAACGTCGTCGTCTCACCCGGCCCCGGCCACCCCGCC 3206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGAGGTGAACGGCGCCGCTCCGCTCGTCGTCCGCAACGACGACACCCGCACCTGGCAG 3146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyGluAlaThrGlyGlnProProValValValProAsnAsp-----AlaAspTrpSer 38
                                                                                                                                        ThrThrThrArgThrArgArgPro-----PhePheAsnTyrLeuGluGluGlnLeuGlu
                                                                                                                                                                         GGCGAACAGATCACCTACGACGTCGCCGACCGGGCCGTGCGCGTCAAG-----GACGGT
                                                                                                                                                                                                                                                                                     GCGGACGCCGCTTCACCGCCCTGTTCGCCGACGCCCCGGCCCGGTTCTGGCTCGACAGC
                                                                                                                                                                                                                                                                                                               AlaGluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSer
                                                                                                                                                                                                                                                                                                                                           GCGTCCGCGCCGGTGGGGAGTACCGGCTGCATGTGCGCGAGGTCGCCTGCGTGCCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                 AlaArgArgHisGlyAlaAspSerPro---
                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCGAACCCTTTCACGGCCGACCACCAGCGACATCCGCCACGGGCAGGGCCTGTTCGCG 3386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProGluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCCCGGCGCGCCGCCGTCGTCCACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCGACACCGÁCCTGGGCCTCÁGCCGCCGGGTGÁTCÁCCGAATGGGACCTGCCGCTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgLeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgGluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeu 78
                                                                                                                                                                                                                                                                                                                                                          -----TyrGluLeuHisValArgArgValAspValLeuProAsp
           4097
                                                                                                                    3980
                                                                                                                                                                                                    275
                                                                                                                                                                                                                                                                                                                                                                                                                                                      3626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3326
                                      333
                                                                 4037
                                                                                                                                                                          3920
                                                                                                                                                                                                                               3866
                                                                                                                                                                                                                                                                                                                                                                      215
                                                                                                                                                                                                                                                                                                                                                                                                 3686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3446
                                                                                                                                               293
                                                                                                                                                                                                                                                          255
                                                                                                                                                                                                                                                                                     3806
                                                                                                                                                                                                                                                                                                             235
                                                                                                                                                                                                                                                                                                                                           3746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98
                                                                                                                                                                                                                                                                                                                                                                                                                             202
```

S

360

589 300 569 240

669 540 649 480 629 420 609

600

549

529

180

509

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
   밁
                               Š
                                                                    US-10-089-514-2 (1-686) x US-08-765-907A-1 (1-2888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-765-907A-1
                                                                                                                      Query Match:
                                                                                                                                      Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                            US-08-765-907A-1
                                                                                                                                                                                                                                                                                                     FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1, Application US/08765907A Patent No. 6352839 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: BAMAS-JACQUES, I
APPLICANT: BLANCHE, Francii
APPLICANT: COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OP INVENTION: Streptogramins And Method
TITLE OP INVENTION: Mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                         LENGTH: 2888
TYPE: DNA
ORGANISM: Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            446
                                   470
   \mathbf{L}
                     LeuGluPheProGluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGly 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGCCTGATCACCGACGCGAGACCTACGAGGTGTGCCTGACGAACATGCTCCGGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThrAsnMetValThrAla 445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaProAlaGluProThrProAlaMetValPheGlyIleProGluAlaAlaAlaGlyPhe 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCTGGCTCCTGGCACTGAGCAGCACCCGACGGCCGCCACCGGCACCCGCCGCCGAACGC 421:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TACGCCGCCTACCTGCAG 4496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrGlyAlaLeuLeuGlu 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGGCCGGATCGACCGCTCACCGCCTACCGCGCCCTGCGCACCGTCAGCCCCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLysArgIleAspGluCys 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TrpLeuArgGluThrAlaGluThrLeuThrGlyLeuAlaValArg-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CysTyrLeuLeuAlaLeuAsp-----ArgArgGlyHisAspAspGlyAlaArgAla 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGACGGCCTTCATGTTCGCCGACCGGATGCTCGCCCTCGACCACGAACAGGGGCGG 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProAspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCys
 CTGCAGTTCCCCGGGGCCACCGTGCTCAGCTCCTCACCCGAACGGTTCCTGCGCATCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSerProValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLANCHE, Francis
COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  THIBAUT, Denis
BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GTCCACTACCGCCACAGCCTGCCCCGCTACCGGGAACTGGTCGAGGAATGC
                                                                                                        2.47e-64
725.50
78.70%
69.44%
20.31%
                                                                                                                                                                                                                                                         pristinaespiralis
                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                               For Preparing Same
                                                                                                    2888
150
20
45
1
                                                                                                                                                                                                                                                                                                                                                                                                                               Ву
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     385
   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 6
US-09-987-614A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
 Alignment Scores: Pred. No.:
                                                   ; LENGTH: 2888
; TYPE: DNA
; ORGANISM: Streptomyces
US-09-987-614A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                      SOFTWARE: PatentIn SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: BLANC,
APPLICANT: THIBAT
APPLICANT: BAMAS-
APPLICANT: BLANCE
APPLICANT: COUZET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Application Patent No. 6833382
                                                                                                                                                  TITLE OF INVENTION: Streptogramins And Method For Preparing TITLE OF INVENTION: Mutasynthesis FILE REFERENCE: Streptogramin genes CURRENT APPLICATION NUMBER: US/09/987,614A CURRENT FILING DATE: 2001-11-15 PRIOR APPLICATION NUMBER: US/08/765,907 PRIOR APPLICATION NUMBER: US/08/765,907 PRIOR APPLICATION NUMBER: US/08/765,907 PRIOR FILING DATE: 1997-03-20 NUMBER OF SEQ ID NOS: 17
                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301 GTCCGCGGCCTGGCGGCCGACGTCTCCCGCCCCCGCGCGTACGGGCCGCCTTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 GCCCAGGACGCCGCCGTCAAGGCCTCCCTCGCCGGGGCCGAGAAGGACCGCAGCGAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                510 GluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              490 AlaAspGlyGlyValGluSerLysProIleLysGlyThrArgProArgGlyGlyThrAla
                                                                                                                                                                                                                                                                                          BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
PARIS, Jean-Marc
DUTRUC-ROSSET, Gilles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGCAGACCACCTCGCCCCTG---CGCCAGGCACACGCGGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaArgAlaMetValThrAlaLeuAspGlySerAlaValAlaGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPheThrGluThrValValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspLeuSerIleVallleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGGGCCCGCGCGCGTGTACTCGGGCGCCTGGGCTACTTCGCCCTCAGCGGCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluGlyProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCGGGTCGATGACCGGCGCGCCAAGGTCCGCACCATGCAGTTCATCGACCGGCTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IleArgGlyArgLeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPhePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACGTACCGGGCCTGTTCGAGGTGGAGACCTACGCCACCGTCCACCAGCTCGTCAGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HisValProArgLeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGATGATCGTCGACCTGGTCCGCAACGACCTCGGCCAGGTCTGCGACATCGGCTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuMetIleValAspLeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACCTCAGCATCGTCATCCGCACCATCGTCGCCACCGAGGAGGCCGCCACCATCGGCGTG
                                                                                                                                                                                                                                                                                                                                                                             BLANCHE, Francis COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                               BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                               THIBAUT, Denis
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Veronique
2.47e-64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/09987614A
                                                                   pristinaespiralis
Length:
   2888
                                                                                                                                                                                                                                                                            Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       645
                                                                                                                                                                                                                                                                            βy
```

```
Sequence 845, Application US/09902540

Patent No. 6833447

GENERAL INFORMATION:
APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Wiegand, Roger C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Genome Seq.
FILE REFERENCE: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
CURRENT FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
INVMBER OF SEQ ID NOS: 16825
SEQ ID NO 845
LENGTH: 7760
TYPE: DNA
ORGANISM: Myxococcus xanthus
US-09-902-540-845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score:
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                          RESULT 7
US-09-902-540-845/c
       S
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-2 (1-686) x US-09-987-614A-1 (1-2888)
                                                                                                                                                                                                                                                                                                                     109
                                                                                                                                                                                                                                                                                                                                                                                                       650
                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                              630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HisValProArgLeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThr
                                                                                                                                                                                                                                                                                                                                            AlaArgAlaMetValThrAlaLeuAspGlySerAlaValAlaGlyAla
                                                                                                                                                                                                                                                                                                                                                                                          GlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPheThrGluThrValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspLeuSerIleValIleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGATGATCGTCGACCTGGTCCGCAACGACCTCGGCCAGGTCTGCGACATCGGCTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuMetIleValAspLeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAspGlyGlyValGluSerLysFroIleLysGlyThrArgProArgGlyGlyThrAla
                                                                                                                                                                                                                                                                                                                  ĠĊĠĊAGACCACCCTCGCCĠĊĊĊŤĠ---CGCCAGĠĊÁCACĠĊĠĠĠĊĠĊĊ
                                                                                                                                                                                                                                                                                                                                                                                                                                   GACCTCAGCATCGTCATCCGCACCATCGTCGCCACCGAGGAGGCCGCCACCATCGGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCGGGTCGATGACCGGCGCGCCCAAGGTCCGCACCATGCAGTTCATCGACCGGCTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCCGCGGCCTGGCGGCCGACGTCTCCCGCCCCCGCGGTACGGCCCCTTCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCAGGACGCCGCCGTCAAGGCCTCCCTCGCCGCGGGCCGAGAAGGACCGCAGCGAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCGGCGCCGTCGTCGCCCTGTCCGACCCCCGACGACGACGTCCGCGAAATGCTCCTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             725.50
78.70%
69.44%
20.31%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels:
Gaps:
                                                                                                                                                         Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        150
20
45
                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                   645
                                                                                                                                                            Uses
                                                                                                                                                            Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                            649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                     Ş
                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment
Pred. No.:
                                            밁
                                                                                                  밁
                                                                                                                                                          밁
                                                                                                                                                                                5
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-2 (1-686) x US-09-902-540-845 (1-7760)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                  4189
                                                                                                                                                                                                                                                                         4237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4738 CTGCGTCCCGTGGACCTCCTG
                                                                                                                                                                                                                                             419
                   499
                                                                                                                                                                                                                                                                                                     401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              247
 IleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAsp
                                                             SerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysPro
                                                                                                  TCCGCCATCAACCCCGTCCACTTCGCCAGCTATCTCGAAGGTGACGGCTTCCACGTCGTC
                                                                                                                             ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeu
                                                                                                                                                          CTCTCGCAGCGGCTGGAGTGGACTTTCCCGGTGAGCCGCTCGCGCTCTACGAGACGCTG
                                                                                                                                                                          LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                                                                                                                                                              CTGGACGCAGTCGAGCGCGTGCGCGAGTACATCCGCGCCGGTGACACGTATCAGGTCAAT
                                                                                                                                                                                                                                     LeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCys
                                                                                                                                                                                                                                                                       -----GATGGGCCCACCTCGGCGTATCGCTCCAACTTCACCCTCGATGCTTAC
                                                                                                                                                                                                                                                                                                  AlaAlaAlaGlyPheGlyProLeuAla-----ArgAlaArgHisAspLysAspAlaTyr
                                                                                                                                                                                                                                                                                                                            GACTGGGAGGACTGTGAGCGCAGGTTGGACGCGTTGGAGGTCCACGTCCGCACCGCGACG
                                                                                                                                                                                                                                                                                                                                                                                                             ArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThr---AlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                            GACACCTTCCTGACGATGGACCACGAGGGCCAATTGCTCCTGGTGGCCACGGGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyAspProAlaHisArgSerProHis---i----ProAspAlaAlaPheLeuPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLysAlaGluThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValValSerValArgGlySer-----AspGlyThrThrThrArgThrArgArgProPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTCCTCGGC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThrTyrArgValAlaAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAA---AGCCGGTTCCTGCTGGAGAGCACCCGGGTC---AGCGCCGAGGGGGCGCTATTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluGlyThrThrPheTrpLeuAspSerSerSerValLeuGluGlyAlaSerArgPheSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValArgArgValAspValLeuProAspAlaGluGluValArgArgGlyCysLeuProGly 226
                                            AGCGCCTCACCGGAGCGGCTGGTGCGTGTG---GAGAACGGCCGAGCCACCACGCGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAlaProGluLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGTGCTTCATTGATGGCGCGCTCCAGCAGGGTACGCCGCAGGAGGTG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCTGCGGCGCGCGCTGGGCTTCTTCGGCTACGAGGCCGCGCACTGTTTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -CTGCGCTCGCTGCCGCCGGTGGCGTGGCGTCATCCCGGAATGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.25e-53
623.50
50.31%
36.74%
17.45%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -------GCGAAGCCCTTCCTGCGTTTCACCGCGAAAGAGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7760
176
65
191
47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----CGAGCCCTCCCAGCG
                518
                                                                                                    4010
                                                                                                                                                          4070
                                                                                                                                                                                                               4130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4703
                                                                        498
                                                                                                                              478
                                                                                                                                                                                                                                             438
                                                                                                                                                                                                                                                                         4190
                                                                                                                                                                                                                                                                                                   418
                                                                                                                                                                                                                                                                                                                               4238
                                                                                                                                                                                                                                                                                                                                                           400
                                                                                                                                                                                                                                                                                                                                                                                       4268
                                                                                                                                                                                                                                                                                                                                                                                                                                               4328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4649
                                                                                                                                                                                      458
                                                                                                                                                                                                                                                                                                                                                                                                                   380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246
```

멍

```
Sequence 8203, Application US/09902540

Patent No. 6833447

GENERAL INFORMATION:

APPLICANT: Goldman, Barry S.

APPLICANT: Hinkle, Gregory J.

APPLICANT: Hinkle, Gregory J.

APPLICANT: Wiegand, Roger C.

APPLICANT: W
                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
DB:
밁
                                Ś
                                                                          망
                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 8
US-09-902-540-8203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                US-10-089-514-2 (1-686) x US-09-902-540-8203 (1-1308)
                                                                                                                                                                                                                                                                                                 Score:
                                                                                                                                                                                                                                                                                                                     Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            519
                                       251
                                                                                 10
64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGCTGGGGTACCTGTCCTTCACGGGTGATTTGGATTTGAACATCGTCATCCGCACGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCCGACAGGAATACAAGGAGACGCTCAACAAGGCGCCTCGCAGCTCCTGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnGluGluGheThrGluThrValValLysAlaArgAlaMetValThrAlaLeu 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu
                                                                               TICCTGCTGGAGAGCACCCGGGTC---AGCGCCGAGGGGCGCTATTCGTTCCTCGGC---
                                                                                                         PheTrpLeuAspSerSerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGGTGAAGGACGGCCAGGCCTACGCGCAGGTGGGAGGCGGCATCGTCCACGACTCGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGCCGCTGGACGTGGGCGCGCTCTTCCCAGGCGGACGATTACGGGCGTGCCGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGTACGCCCACGTCCTCCACATTGAATCGGAGGTCGTCGGCCAGCTCGCGCCGGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGCGCACCAACGAGAAGGAGCGCGCGAGCACGCCATGCTGGTGGACCTGGAGCGCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsn
                                     AspArgGlyProLeuAlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACCTGGGCCGGGTGTGCACCTATGGCTCGAGGTGACGAAGCTGATGGACATCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCGCCGGAACGCGC---CGACGGGGCACGCCCGAAGAGGAAGCGCGCTTCGTCCACGAG
                                                                                                                                                                                                                                1.8e-53
615.00
50.77%
37.14%
17.21%
GCGAAGCCCTTCCTGCGTTTCACCGCGAAAGAGGGACAGTGCTTCATT
                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequences
                                                                                                                                                                                                       1308
169
62
186
38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Uses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3656
                                       270
                                                                            63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멼
                                              Ş
                                                                                                  밁
                                                                                                                                      δ
                                                                                                                                                                                      멍
                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δõ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      586
                                                         603 GluileileAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeuGlyTrp
                                                                                                                                                                                                                                563
                                                                                                                                                                                                                                                                                                                                                                                                                                              763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      346 AlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAspArgArgGlyHisAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      112 GATGGCGCCCCCAGCAGGGTACGCCGCAGGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                271 ArgGlySer-----AspGlyThrThrThrKrgThrArgArgProPhePheAsnTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAAATCATCACCGAGCTGGAGCCACATGCGCGCGCGCTCTATACGGGCTCGCTGGGGTAC
                                                                                                                               CysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArgThrMet
                                                                                                                                                                               GTCCTCCACATTGAATCGGAGGTCGTCGGCCAGCTCGCGCCGGGGGTGGAGCCGCTGGAC
                                                                                                                                                                                                                       ValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAla
                                                                                                                                                                                                                                                                         GTGTGCACCTATGGCTCGATCGAGGTGACGAAGCTGATGGACATCGTCGAGTACGCCCAC
                                                                                                                                                                                                                                                                                                                 ValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyrAlaPro
                                                                                                                                                                                                                                                                                                                                                             GAGAAGGAGCGCCCGAGCACCATGCTGGTGGACCTGGAGCGCAACGACCTGGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                     GluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGCGGCTGGTGCGTGTG----GAGAACGGCCGAGCCACCACGCGGCCCATCGCCGGAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLysGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCGTCCACTTCGCCAGCTATCTCGAAGGTGACGGCTTCCACGTCGTCAGCGCCTCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAlaSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGGAGGTGGACTTTCCCGGTGAGCCGCTCGCGCGCTCTACGAGACGCTGTCCGCCATCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGCGCGTGCGCGAGTACATCCGCGCCGGTGACACGTATCAGGTCAATCTCTCGCAGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThrAsnMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGluAlaAlaAlaGly 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AspGlyAlaArgAlaTrpLeuArgGluThr---AlaGluThrLeuThrGlyLeuAlaVal 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGGTGGACCACCACGAGGGCCAATTGCTCCTGGTGGCCACGGGCTCGGACTGGGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HisArgSerProHis-----ProAspAlaAlaPheLeuPheAlaAspArgAlaIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCGGCGCGTGGGCTTCTTCGGCTACGAGGCCGCGCACTGTTTCGAGTCCCTGCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCTCGCTGCCGCCCGGTGGCGTGGCGTCATCCCGGAATGCCGCTC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluGluGlnLeuGluArgArgArgValProValAlaProGluLeuProPheGluPheAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGTGAGCGCÁGGTTGGACGCGTTGGÁGGTCCACGTCCGCÁCCGCGÁCGCCCACGGCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGACGGGGCACGCCGAAGAGGAAGCGCGCTTCGTCCACGAGCTGCGCACCAAC
                                                                                                  ||||||::::::|||||||
|GCGGGACGATTACGGGCGTGCCGAAGATACGCACGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CIG
                                                                                                     1059
                                                                                                                                                                                                                                582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  327
                                                             622
                                                                                                                                              602
                                                                                                                                                                                        999
                                                                                                                                                                                                                                                                            939
                                                                                                                                                                                                                                                                                                                     562
                                                                                                                                                                                                                                                                                                                                                               879
                                                                                                                                                                                                                                                                                                                                                                                                       542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       207
                                                                                                                                                                                                                                                                                                                                                                                                                                                819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           150
```

```
APPLICANT: Marc J. Rubenfield et al.

TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO I

TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS

FILE REFERENCE: 107196.136

CURRENT APPLICATION NUMBER: US/99/252,991A

CURRENT FILING DATE: 1999-02-18

PRIOR APPLICATION NUMBER: US 60/074,788

PRIOR APPLICATION NUMBER: US 60/094,190

PRIOR FILING DATE: 1998-07-27

NUMBER OF SEQ ID NOS: 33142

SEQ ID NO 13733

LENGTH: 1431

TYPE: DNA
                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 9
US-09-252-991A-13733
         र्
                                          밁
                                                                              5
                                                                                                                   밁
                                                                                                                                                र्
                                                                                                                                                                                          밁
                                                                                                                                                                                                                             र्
                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                    र्
                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-2 (1-686) x US-09-252-991A-13733 (1-1431)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; ORGANISM: Pseudomonas
US-09-252-991A-13733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 13733, Application Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Х
О . :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     643
         364
                                            463
                                                                                                                   403
                                                                                                                                                        328
                                                                                                                                                                                            343
                                                                                                                                                                                                                               310
                                                                                                                                                                                                                                                                     289
                                                                                                                                                                                                                                                                                                          291
                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                      214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             233 LeuAspSerSerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArg
     HisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThrGlyLeuAla
                                                                                                                                                                                                                                                                                                      ---GlnLeuGluArgArgArgValProValAlaProGluLeuProPheGluPheAsnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyProLeuAlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGly 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TACAAGGAGACGCTCAACAAGGCGCGCTCGCAGCTCCTGGCCCTG 1284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PheThrGluThrValValLysAlaArgAlaMetValThrAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGTCCTTCACGGGTGATTTGGATTTGAACATCGTCATCCGCACGCTGGTGGTGAAGGAC
                                            AGCGACCACCAGGCCGCACCAGCCAACTGGTATTCCACCCGCGATTGGACGAGCGCGAA
                                                                     LeuAspHisGlnGluGlyCysCysTyrLeuLeu-----AlaLeuAspArgArgGly 363
                                                                                                                 GCCCGCGATGACCTGGGCCTGCCGCTGGGCCTCCGGCCTGTATGCCTGGGCGCTGATC
                                                                                                                                                                                                                               GlyTyrValGlyTyrLeuGlyTyrGluLeu-----LysAlaGluThrThrGlyAspPro 327
                                                                                                                                                                                                                                                                   GGAAGCCTGGGCCCCGCGCAGCTGCCAGCGCCGTACGAACTGCCCTTCGCCGGC-----
                                                                                                                                                                                                                                                                                                                                              CCCGACGAATCGGCCAACCGC
                                                                                                                                                                                                                                                                                                                                                                             SerAspGlyThrThrArgThrArgArgProPhePheAsnTyrLeuGluGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                      TGGCCATTGGCAGAACTGGCGCCGCTG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCGATTCGGGTCGCCCCATCGCTACCCGTGGACGCTATGACCTTATG-----AGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGlu
                                                                                                                                                    AlaHisArgSer---ProHisProAspAlaAlaPheLeuPheAlaAspArgAlaIleAla 346
                                                                                                                                                                                          GGTCTGCTGGGCTATTTATCCTACGACCTGGGTCGGCGCATCGAGCGCATCGGCGAACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCCAGGCCTACGCGCAGGTGGGAGGCGGCATCGTCCACGACTCGCAGCCCCGACAGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeuAlaAsp 642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.08e-53
615.00
48.26%
36.52%
17.21%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/09252991A
                                                                                                                                                                                                                                                                                                                                           ------TTCTTCGCCCGCCTACGCGAAGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1431
168
54
184
11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            677
                                                                                                                                                                                                                                                                                                                                                                                                                      ........
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PSEUDOMONAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   662
                                            522
                                                                                                                   462
                                                                                                                                                                                            402
                                                                                                                                                                                                                                                                                                      309
                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1239
                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                    US-09-252-991A-13413/c
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                 Sequence 13413, Application Patent No. 6551795
                                                                                                GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al. TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1051
                                                                                                                                                                                                             1351 GAGTACCAGGAAACCCTGGACAAGGTCCGGGTGCTGCTGGAAACCCTGGAAGGGATGGCC
                                                                                                                                                                                                                                                                                       1291 AACGGCCAGGTCAGTTGCTGGGGGGGGGCGGCATCGTCGCCGACTCGCACTGGGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                     1171 ATGCAGATCATCGACGAACTGGAACCGAGCCGACGCGGCATCTACTGCGGCAGCCTGTTC 1230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1111 GACCTGCTGGAAGGCAGCTTCCCCGGCGCGCTCGATCACCGGCGCGCGAAGATTCGCGCC
                                                                                                                                                                                                                                              662 GluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    502 ThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               754 TGCCCGACGCCGTTCTCCGGCTACCTGCGACTGGCCGACGGCGCGATCCTCAGCCTGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACGTGCATCACCTGGTGAGCAGCGTCACCGGCGAACTGGCGCCGGGCAAGGACGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCAGTTGCCAACCTGGCAGCGTACGGGTACCGGAGCTGTTCGCCCTGGAAAGCTATCCC
                                                                                                                                                                                                                                                                                                          AspGlyGlnAlaGluPheGlyValGlyGlyÅlaIleValSerLeuSerAspGlnGluGlu
:::||||||
                                                                                                                                                                                                                                                                                                                                                            TACCTCGACGTGCGCGGGGAGATGGACAGCTCGATCGCCATCCGCACCCTGCTGGTCAGG
                                                                                                                                                                                                                                                                                                                                                                                   TrpPheAlaLeuSerGlyAlaAlaAspLeu9erIleVallleArgThrIleValLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyrAla 561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCCCCAAGGACCGCGCGGAAAACCTGATGATCGTCGACCTGCTGCGCAACGACATCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeuAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCCGCCCGCGCGCAAGACCCCCGAGGAGGACATGGCGCTGGCGGCGTCGCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGAGCGCTTCCTCAAGCTCGAC---AAGGGCAAGGTGGAAACCCGGCCGATCAAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLysGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAlaSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCCGCCGCATCCAGGACTACATCCAGGCAGGCGACTGCTACCAGGTGAACTATAGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThrAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AACTTCAAGCTTCTGGGAAAATTCCGACGGAGCATCAGCGCATCCGACTATCGGCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAla-----TyrLeuLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGluAlaAlaAla 403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCCAGCGCCTGATCGCCCTGTTCAGCGAGGAAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCTTCCAGGCCGCTTGCAGCGGCTCGCCGTGGCCGGCCTATCGCGCGCCTGCGCGAGGCC
                                                                                                                                  US/09252991A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----CAAGGCGCGGCCGGC
                                                               덩
                                                               PSEUDOMONAS
                                                                                                                                                                                                             1410
                                                                                                                                                                                                                                                                                     1350
                                                                                                                                                                                                                                                                                                                                                              1290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        990
                                                                                                                                                                                                                                                  681
                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         558
```

```
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/0;
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/0;
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 13413
LENGTH: 1101
TYPE: DNA
                           á
                                                         밁
                                                                                       á
                                                                                                                         В
                                                                                                                                                   δ
                                                                                                                                                                                   밁
                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores: Pred. No.:
   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; ORGANISM: Pseudomonas
US-09-252-991A-13413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-089-514-2 (1-686) x US-09-252-991A-13413 (1-1101)
                                                                                                                           477
                                                                                                                                                       539
                                                                                                                                                                                      537
                                                                                                                                                                                                                                                 597
                                                                                                                                                                                                                                                                              499
                                                                                                                                                                                                                                                                                                              654
                                                                                                                                                                                                                                                                                                                                          479
                                                                                                                                                                                                                                                                                                                                                                         714
                                                                                                                                                                                                                                                                                                                                                                                                      459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
   357
SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys
:::
:::||||||||||||||
GACGCCCTCGACCTGCTGGAAGGCAGCTTCCCCGGCGGCGCGCTCGATCACCGGCGCGCCGAAG
                                                                               ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                                                                                                                                                                                                                                                                                                         SerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGCTGATCAGCGACCAGCCAGGCGGCACCCAGCCAACTGGTATTCCACCCGCGATTGGAC
                                                            AGCTATCCCAACGTGCATCACCTGGTGAGCAGCGTCACCGGCGAACTGGCGCCGGGCAAG
                                                                                                                                                                                    LeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                    ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGCGCGAACGCCAGCGCCTGATCGCCCTGTTCAGCGAGAAACG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgargGlyHisaspaspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeu-----AlaLeuAsp
                                                                                                                         GACATCGGACGCAGTTGCCAACCTGGCAGCGTACGGGTACCGGAGCTGTTCGCCCTGGAA
                                                                                                                                                 AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu
                                                                                                                                                                                                                                               ATCAAGGGCACCCGCGCGCGCAAGACCCCCGAGGAGACATGGCGCTGGCGGCGTCG
                                                                                                                                                                                                                                                                       IleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAsp
                                                                                                                                                                                                                                                                                                            AGCCTGTCGCCGGAGCGCTTCCTCAAGCTCGAC---AAGGGCAAGGTGGAAACCCCGGCCG
                                                                                                                                                                                                                                                                                                                                                                         CGCGAGGCCTGCCCGACGCCGTTCTCCGGCTACCTGCGACTGGCCGACGGCGCGATCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGCCGGCAACTTCAAGCTTCTGGGAAAAATTCCGACGGAGCATCAGCGCATCCGACTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8.04e-50
578.50
52.48%
39.94%
16.19%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 60/094,190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/074,788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1101
137
43
134
29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -CAAGGC
                                                            358
                                                                                                                                                                                                                                                                            518
                                                                                                                                                                                                                                                                                                                                         498
                                                                                                                                                                                                                                                                                                                                                                                                      478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    400
 298
                                                                                                                                                                                    478
                                                                                                                                                                                                                                                 538
                                                                                                                                                                                                                                                                                                                                                                         655
                                                                                                                                                                                                                                                                                                                                                                                                                                    715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                946
```

```
S
                                                             밁
                                                                                         Ś
                                                                                                                           멂
                                                                                                                                                      Ś
                                                                                                                                                                                          밁
                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
망
                                                                                                                                                                                                                                                                                     Query Match:
DB:
                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: WHITE, Owen R.

APPLICANT: FRASER, Claire M.

APPLICANT: VENTER, John C.

TITLE OF INVENTION: DNA SEQUENCES FOR STRAIN
TITLE OF INVENTION: TUBERCULOSIS
FILE REFERENCE: 24366-20007.00
CURRENT APPLICATION NUMBER: US/09/103,840A
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                      US-10-089-514-2 (1-686) x US-09-103-840A-2 (1-4403765)
                                                                                                                                                                                                                                                                                                                                                                    Pred.
                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2, Application US/09103840A Patent No. 6294328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
OTHER INFORMATION: COTHER INFORMATION: COTHER INFORMATION: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: FLEISCHMAN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 4403765
TYPE: DNA
ORGANISM: Mycobacterium tuberculosis
                                                                                                                                                                                                                                                                                                                                                                    No.:
1798525 CGCCGGATAGAAGAACAGGACCACGGGTCCGTCGGATAGCAGGACGCTAAGCCTGCGAGG 1798584
                                                              1798480
                                                                                                                           1798420 AACGGGATCGGTGCTGATGCCGACCCGGCTGGCCCTCGGCGAATTCTTTGGCCAA
                                                                                                                                                                                          1798378 GTAGTCGAAACGCCGCACCTCGGC----
                            104 GlyArgValSerGluValArgHis-----ThrGlyGluAspValPheArgGlyLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      679 GlySerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         619 AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIle
                                                                                                                                                       68 ArgAlaIle-----ThrAspSerGlyLeuProValLeuGlyValCysLeuGlyHis
                                                                                                                                                                                                                    48 IleValValSerProGlyProGlySerProAspArgGluArgAspPheGlyIleSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    57 GGGATGGCC 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGGAGGACGAGTACCAGGAAACCCTGGACAAGGTCCGGGTGCTGCTGGAAACCCCTGGAA
                                                                                          GlnGly---IleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGluProMetHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlnGluGluGheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGGTCAGGAACGGCCAGGTCAGTTGCTGGGGCGGCGGCGCATCGTCGCCGACTCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCCTGTTCTACCTCGACGTGCGCGGCGAGATGGACAGCTCGATCGCCATCCGCACCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                              CDC 1551
"n" bases
represent
                                                                                                                                                                                                                                                                                     3.65e-43
570.50
44.14%
29.81%
15.97%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Robert D.
                                                                                                                                                                                                                                                                                                                                                                                                                                a t
                                                                                                                                                                                                                                                                                                                                                                                                                                various
t, c or
                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                positions
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ANALYSIS
                                                                                                                                                                                          -----GAATTTGGCCTGCTTTCG
                                                                                                                                                                                                                                                                                4403765
206
99
285
101
26
                                                                                                                                                                                                                                                                                                                                                                                                                                              throughout the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IN MYCOBACTERIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence
                               121
                                                                                              103
                                                                                                                           1798479
                                                                                                                                                           84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         618
                                                                                                                                                                                          1798419
```

```
S
                                        밁
                                                                          ક
                                                                                                                     밁
                                                                                                                                                       ঠ
                                                                                                                                                                                              밁
                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     श्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              श
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                믕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1799065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1798960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1798765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1798645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      163
      442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      132 LeuAlaAlaThrAspLeuProAspGluLeuGluProLeu-AlaTrpSerAspAspGly--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     etValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleS
                                                                                                                                                                                            CCGCAGCGCTCGGCCAACCACTACCGTCAACCGTGGCCACCTTCAGCCGACCCGAG----
                                                                                                                                                                                                                                                                                                                                                                                laLeuAspHisGlnGluGlyCysCysTyrLeuLeu-----AlaLeuAspArgArgGlyH
||:::||||||
                                      TCGAATACTTGGTGGATCAGATTGCAGCCGGTGAAGCGTTCCAGGTGGTGCCCTCGCAGC 1799556
                                                                                                                                                                                                                                                                        CCGACGAGCGGGTC---GACTGGGCCTACGACGCGGCTGGTCGCTCGGCTGGACGTGATGA 1799394
                                                                                                                                                                                                                                                                                                               isAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThrGlyLeuAlaV
                                                                                                                                                                                                                                                                                                                                                 CGGTCGATCACCACGAGGGCACCATCACGTTGATCGCCAACGCCGTGAACTGGAACGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                GGGCCGTCGATGACCTCTGCCTGCCGGACATGCTGCTGTTGCTGGCCACCGATGTGGCGG 1799277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCAGTCCGAGCCGGGTCTTCCGCCGGTG-----TCGGGTGGCATGGTCGGTT 1799172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           hrargargProPhePheAsnTyrLeuGluGluGlnLeuGlu------A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hrTyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGTCGTGGTCGCGATGGTCGTTTATCGGTGCGGGG---GCGCCAACGGCG-----TTGA 1799010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             luGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuT
                                                                        leAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThrAsnM
                                                                                                                                                                                                                                  alArgAlaProAlaGluProThrProAlaMetVal-----PheGlyIleProGluAlaA 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCTTCGCCTATGACATGGTGCGACGG------CTGGAACGATTGCCGGAAC 1799217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               yrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHis-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rgArgArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGlyT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGGCGGAGACCCGCTGCGGGCGCTGCAGGTGACCTTGGAGCTGCTGGCTACGGCGGATC 1799124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGTGCGT----GAGGGGCAAGCGGTATGGCTGCCTGCCCCAAGGACGCTCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GTTCCGGTGACTCGC---AAGGTCTTGGCCGACAGCGAGACGCCGCTGTCGGCCT 1798899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      yrGluLeuHisValArgArgValAspValLeuProAspAlaGlu------GluValA 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTTCCGCCTCCTGGCG---GCCGAGCACCGGGTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   snPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAspSerProT 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGAAGATGGTTCGGTGCACGCCGACCTCGCAGCCACCTCGCGTGAG------G 1798815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCGCCGTTTGCGCGGCGTGCATCGTCGTCGGCGTACGCCCGGGCCGATCGGCGTATCT 1798764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGGCTACAACCGATTGCCCGACTCCTTGCGCGCCGCTTCGCGGGGTGCCCCCAT 1798704
                                                                                                                                                   laAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLysArgI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTCCCGGTCTGATCGGGCAGTTCGAAGTCGGCTACCGTGTCACCGGTTTTCATAGTCGT 1798644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIleMetAlaA 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----ValValMetGlyLeuArg-HisArgGluLysProLeuT
                                                                                                                 - CCGCGCCACCGTGCGCAACGCACCGTCGAAGAATATGGTGCGATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---ProAspAlaAlaPheLeuPheAlaAspArgAlaIleA
                                                                                                                                                                                                                                                                                                                                                                                            364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   260
                                                                                                                                                         422
                                                                                                                                                                                                                                                                                                               384
                                                                                                                                                                                                                                                                                                                                                     1799337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1799064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         131
```

```
APPLICANT: WHITE, OWEN R.

APPLICANT: FRASER, Claire M.

APPLICANT: VENTER, John C.

ITITLE OF INVENTION: DNA SEQUENCES FOR STRAIN

TITLE OF INVENTION: TUBERCULOSIS

FILE REFERENCE: 24366-20007.00

CURRENT APPLICATION NUMBER: US/09/103,840Å

CURRENT APPLICATION NUMBER: US/09/103,840Å

CURRENT FILING DATE: 1998-06-24

NUMBER OF SEQ ID NOS: 2

SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 12
US-09-103-840A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ٠δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                         SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1, Application US/09103840A Patent No. 6294328
                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                       APPLICANT: FLEISCHMAN, Robert D.
ORGANISM: Mycobacterium tuberculosis OTHER INFORMATION: H37Rv
                                               TYPE: DNA
                                                                 LENGTH: 4411529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1799914 ACATCGAGCGGTACAGCCACGTGATGCACCTGGTGTCCACGGTGACCGGGAAGCTCGGCG 1799973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1800274 CGATCGCTGCCGCCGAGACGCTGGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1800214 ACTCCAACGGATCCTACGAATACAACGAGGCGAGGAACAAGGCTCGGGCTCTGCTCAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1800154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1800094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1799974 AAGGGCGCACCGCGCTGGACGCGTGACCGCCTGCTTTCCGGCCGCCACGCTGTCGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1799794 AAAAAGAGCTGCTGGCGGACGACGAAAGAACGTGCCGAGCATCTGATGCTGGTCGACCTCG 1799853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1799617 ACCCAAGTCCCTACATGTATCTACTGCAGTGCCGAATAGTGATGGTGCAGTGGACTTTT 1799676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1799557 GCTTCGAGATGGACACCGATGTCGATCCCATCGACGTGTACCGAATTCTGCGGGTAACCA 1799616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1800034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1799854 GCCGAAACGACCTGGGTCGGGTCTGCACGCCGGGCACTGTTCGGGTCGAGGATTACAGCC 1799913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              556 luValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               laLeuAspGlySerAlaValAlaGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    euSerAspGlnGluGluPheThrGluThrValValLysAlaArgAlaMetValThrA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACGGCGGTGTCGTTACCTTGACTTCGCCGGCAACGCTGACTTCGCCATCGCCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGAAGGTGCGGGCGATGGAGCTGATCGAAGAGGTGGAGAAGACACGCCGCGGCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  laProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        roGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyA 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             alArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuV
:::||||:::||||:::||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCATCCGATCGCCGGAACCCGGTGGCGCGGAAGGACGACGACGACGACGACGTGCTTCTGG 1799793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           erLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGATTGTTGGATCCAGTCCGGAGGCGCTGGTAACGGTC---CACGAAGGCTGGGCGACGA 1799733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           erValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            erProValProTyrGlyAlaLeuLeuGluPhePro-------GluLeuS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       yrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleA
                                                                                                                                                                                                                                                STRAIN ANALYSIS IN MYCOBACTERIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1800302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1800273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1800213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1800093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1800153
```

,	Alignm Pred. Score:
MARCH: 15.214. (1-686) x US-09-103-840A-1 (1-441529) -099-514-2 (1-686) x US-09-103-840A-1 (1-441529) -099-514-2 (1-686) x US-09-103-840A-1 (1-441529) -099-500 GPAGTCGANACGCCGACCTOCCCC	3.66e-43 Length: 4411529 570.50 Matches: 206
B	
36 Lilemanphistoliudity/cyseystylemies	808295 TCTTCGCCTATGACATGGTGCGACGG

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                               밁
                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 13
US-09-252-991A-811
                    밁
                                                   8
                                                                                         밁
                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-2 (1-686) x US-09-252-991A-811 (1-1506)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; ORGANISM: Pseudomonas
US-09-252-991A-811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-02-19
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 811
LENGTH: 1506
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 811, Application Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1809396 CGATCGCTGCCGCCGAGACGCTGGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                        160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        103
                                                                                           367
                                                                                                                                                                                                     287
                                                                                                                                                                                                                                         262
                                                                                                                                                                                                                                                                    272
                                                                                                                                                                                                                                                                                                                 214
                                                                                                                                                                                                                                                                                                                                                    252
                                                                                                                                                                                                                                                                                                                                                                                                                          232
                    427
                                                         320
                                                                                                                               306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HisArgAlaArgArgHisGlyAlaAspSerProTyrGluLeuHisValArgArgValAsp
                                                                                                                     GlupheAsnLeuGlyTyrValGlyTyrLeuGlyTyr-----
                                                                                                                                                               GCTTTCGTCGAGGAGTTCAAGGCGCGCCTACCAGGTGCCCACCGTGCCCGGCTTGCCA---
                                                                                                                                                                                                 ---TyrLeuGluGluGlnLeuGluArgArgArgValProValAlaProGluLeuProPhe
                                                                                                                                                                                                                                         AGCATCGATGGCATGGAAACCGAGCGC-----
                                                                                                                                                                                                                                                                        GlySerAspGlyThrThrArgThrArgArgProPhePheAsn------
                                                                                                                                                                                                                                                                                                                                                                                      CTGCTGGAGTCGGTGCAGGGCGCGCGAGAAATGGGGGCGCTATTCGATCATCGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                      TrpLeuAspSerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValLeuProAspAlaGluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPhe 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IleGlySerAspPheGlyArgGluIleMetAlaAsnPheArgAspLeuAlaLeuAlaHis
                    CGCCTGGCCACCTGTCCGAACCCG
                                                   LysAlaGluThrThrGlyAspProAlaHisArgSerPro----HisProAspAlaAla
                                                                                       ArgGlyProLeuAlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   laLeuAspGlySerAlaValAlaGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGCCGCCGATGGCTACAACCGCATCCCGCTGTCCTTCGAGACCCTTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.34e-48
563.00
46.56%
31.87%
15.76%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/09252991A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GACTTCGACACGCCGCTGTCGATCTACCTGAAGCTGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1809424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     685
                    -GACCCGCTGGGCAACCCGGATATCCTG
                                                                                                                                                                                                                                         TTCGATTGCGCCGACCCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1506
167
77
214
66
                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----CCGAACTCCTAC
                                                                                                                           GluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PSEUDOMONAS
                    477
                                                                                                                                                                 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                            159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    144
                                                                                                                                                                                                                                                                                                                                                                                    213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             102
                                                                                                                                     δ
RESULT 14
                                                              Ś
                                                                                                          밁
                                                                                                                                                                                밁
                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                       뮍
                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                   닭
                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                    1468
                                                                                                                                                                                  1348
                                                                                                                                                                                                                                                                                                                                 1228
                                                                                                                                                                                                                                                                                                                                                                                                       1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1048
                                                                                                                                                                                                                                                          1288
                                                                                                                                                                                                                                                                                                                                                      594 ThrGlyAlaProLysLysArgThrMetGlufleIleAspArgLeuGluGluGlyProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      338
                                                                                                                                 ValileArgThrileValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaile
                                                                                                                                                                                                                                                                                           GlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIle
                                                                                                                                                                                                                                                                                                                                 TCCGGCGCGGAAGATCCGCGCCATGGAGATCATCGACGAGCTGGAGCCGGTCAAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                       TIGCGCGAGGGGCTCAGCGCGATGGACGCGCTGCGGCGATTCTGCCGGCGGCACTCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspLeuValArgAsnAspLeuAsnSerValĆysAlaIleGlySerValHisValProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCACTGGAGCAGGATCTGCTGTCGGACGCCAAGGAGATCGCCGAGCACCTGATGCTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValGluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGlu
||| :::||||| || || || || || || || ||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetValPheGlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHis
                                    TTCCGCGCCCGTG 1479
                                                                        ValThrAlaLeu 677
                                                                                                                                                                                                                                                        GGAGTCTACGGCGGCGCGGTCGGCTACCTGGCATGGAACGGCAACATGGACACCGCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAAATGGTGATCGAACGTTACTCCAACGTCATGCACATCGTGTCCAACGTCACCGGGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCTGGGGCGCAACGACGTGGGGCGGGTGTCCGATATCGGCGCGGTGAAGGTCACCGAA 1107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGACGGTGCGCCGATCGCCGGTACCCGTCCGCGCGGGATCAACGAAGAGGCCGACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACTTCCATGTCGTGGGCAGCTCGCCGGAGGTGCTGGTACGGGTC---GAGGATGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGTACCGCGCGCTGCGCTGTTTCAATCCGACGCCCTACATGTACTTCTTCAACTTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuTyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPhePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGCATGCAGGTGGTGCCGTCGCAGCGCATGTCCATCGAATTCAAGGCGGCGCCCCATCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerTyrGluIleCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AspLysAspAlaTyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGlu 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCGACCTC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCCTCGCCGATCCCTCCGAGGAAAATGCCTACGAGCGCGGC---CAGGCACGTCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaLeu-----AspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeu
                                                                                                          GTTGCCGACTCGGTGCCCGCGCTGGAGTGGGAAGAAACCATCAACAAGCGCCGGGCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCCGCGAGGACTATGAAAACGCGGTAGGAAGGATCAAGGACTACATCCTGGCCGGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGCTGCTGGAGCGTCTG-------CGCCAGCCGATCACCCCGCGTCGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGATGGTGTCCGATGCCGTAGTGGTATTCGACAACCTGGCCGGGAAGATCCACGCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGGCGGCCAGGTCGTGAGCCGGCGTTTCGTGCCAGCTTC
```

673

653 1347 1227

1287

613

633

1167

1047

987 513 493 870 473

927

453

750

690 413 639 594

373

537

S

645

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-2 (1-686) x US-09-328-352-1525 (1-1503)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Acinetobacter baumannii US-09-328-352-1525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Gary L. Breton et al.
APPLICANT: Gary L. Breton et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING
TITLE OF INVENTION: BAUMANNII FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: GTC99-03PA
CURRENT APPLICATION NUMBER: US/09/328,352
CURRENT FILING DATE: 1999-06-04
NUMBER OF SEQ ID NOS: 8252
SEQ ID NO 1525
LENGTH: 1503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3-09-328-352-1525
Sequence 1525, Application
Patent No. 6562958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N
0
                                                         535
                        377
                                                                                           362
                                                                                                                               484
                                                                                                                                                                  342
                                                                                                                                                                                                      433
                                                                                                                                                                                                                                           322
                                                                                                                                                                                                                                                                            373
                                                                                                                                                                                                                                                                                                              310
                                                                                                                                                                                                                                                                                                                                                  316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                     293
                                                                                                                                                                                                                                                                                                                                                                                                                         259
                                                                                                                                                                                                                                                                                                                                                                                                                                                            275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetAlaAsnPheArgAspLeuAlaLeuAlaHis-----
                                                                                                                                                                                                                                                                                                                                                GluArgArgArgValProValAla------ProGluLeuProPheGluPheAsnLeu
                                                                                                                                                         AspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAspArg
                                                                                                                                                                                                    GTACCTACGGCTGATCCGATT----
                                                                                                                                                                                                                                     GluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPheAla
                                                                                                                                                                                                                                                                                                     GlyTyrValGlyTyrLeuGlyTyrGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                       GGATCAGTAACACAGCAAAATTGTCTAGACCCA---TTCCAATATATCCGTGAATTCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTAGGCGAATCCACAGTTTTTTCCTGTAACGCTGGTGTTTTATCTATACAACATGGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCTGTTGAAGGGGGTGAAAACTGGGCGCGCTACTCTATGATTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerSerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          {\tt AspAlaGluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAsp}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgArgHisGlyAlaAspSerProTyrGluLeuHisValArgArgValAspValLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTAĞCĞCAATTCGAGCAACTTAAGGCTĞCTGGTTACAATACTATTCCTGTTTATCGTCAA
                                                                                         ArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAla-----
                                                                                                                             AAGACAGTCATTGTTTTTGACAATCTTAAAGATACGCTATTTTTAATTGTG------
                                                                                                                                                                                                                                                                            GGCTTGGTGGGTTATTTGGGCTACGATGCTGTCCGCTATATCGAGCCACGTTTAAAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyThrThrThrArgThrArg-----ArgProPhePheAsnTyrLeuGluGluGlnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuAlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGTTTAGCGGATACAGAAACCCCATTATCTGTTTTTGCTCGTTTTAAGGAT------
 -GluThrLeuThrGlyLeuAlaValArgAlaProAlaGluPro---ThrProAla
                                                        - CATGCGGATACAGAGCAGAGTAATGCTTATGAAGACGCTCAGCAAAAATTAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.75e-47
558.00
47.38%
30.34%
15.62%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US/09328352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                    ----ACGCTACCAGATTTATGGTTGATGCTCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            - CAAACACAGGCTTACTTATTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1503
162
91
203
78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----HisArgAla
                                                                                                                                                                                                                                                                                                     LeuLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACINETOBACTER
                                                                                                                                                                                                                                                                                                                                                  372
                                                                                                                                                                                                    483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      78
              Sequence 9, Application U
PACENT NO. 5891695
GENERAL INFORMATION:
APPLICANT: Blanc, Ver
APPLICANT: Blanche, F
APPLICANT: Crouzet, N
APPLICANT: Jacques, N
APPLICANT: Lacroix, P
                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                  US-08-403-852D-9
                                                                                                                                                                                   RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1084
                                                                                                                                                                                                                      1444 ATAMAMGCTCGCGCAGTGATCAMAGCGGTTGAATTATCATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1024
                                                                                                                                                                                                                                                                                           1384 CAGGCTGGTGCAGGGCTAGTTGCTGACTCAAATCCAGAATCTGAGTGGAATGAAACTCAA 1443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1204
                                                                                                                                                                                                                                               668 VallysAlaArgAlaMetValThrAlaLeuAspGlySerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                              608 LeuGluGluGlyProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        474 GluLeuSer-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  589
                                                                                                                                                                                                                                                                                                                             GlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPheThrGluThrVal 667
                                                                                                                                                                                                                                                                                                                                                                    AlaAlaAspLeuSerIleValIleArgThrIleValLeuAlaAspGlyGlnAlaGluPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                         GTAGAACCTGTGAAAAGGGGGAGTTTTTGGCGGGGCTGTTGGTTATTTGGGATGGCATGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PheProGlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIleIleAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCAAATGTACAAGGTGAAGTGCGTGATGATATCGATGCACTTGATGTATTTAAAGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAlaCysValArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAAGTCCAAGTCACGGATCAAATGGTGATTGAGCGCTATTCACATGTCATGCATATTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerValHisValProArgLeuPheGluValGluThrTyrAlaProValHisGlnLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluAsnLeuMetIleValAspLeuValArgAsnAspLeuAsnSerValCysAlaIleGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrAlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGATTACTGATAAAAAACCATTTCATATTGTTGGCTCATCACCGGAA---ATTTTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuTyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPhePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerTyrGluIleCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetValPheGlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTCCGGCAGGAACGTTATCAGGTGCCCCAAAAATTCGTGCAATGGAAATTATTGATGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACTAAAGAAGAAGATATAGCATTAGAAAAAGATTTGCTGTCTGATGAAAAGGAGATTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGATGCAGGTTGTACCTGGGCAGCGTATGGTTTCTGATTTTGATGGAGAAGCTTTACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGTAAAGCAAAATTCTTAGAGACGGTAGAGAAGGTTAAAGAGTATATCCGTGCAGGCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAATTAGAACAGTTGTTGGCGACTCCAGTTAGTTTGCAAGCGCAACCACATACGCCT---
Jacques, Nathalie
Lacroix, Patricia
Thibaut, Denis
                                                                     Blanc, Veronique
Blanche, Francis
                                                    Crouzet, Joel
                                                                                                                                               US/08403852D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -ValLeuSerAlaSerProGluArgPheLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGCATTTTGAATCAATTACT
                                                                                                                                                                                                                      1485
                                                                                                                                                                                                                                                          681
```

647

1263 607 1203 1143 567 1083 547 1023 527 963 507

587

846

473

453 726 433

786

903 487

뮍 á 밁 Ś 밁 Ş

S

Ś 밁 Ş 뮍 Ś 멍 Ş 밁 Ś 밁 Ş 밁 Ś 밁 Ş

밁

```
CURRENT APPLICATION NUMBER: PC-DOS/MS-DOS
CURRENT APPLICATION NUMBER: US/08/403,852D
FILING DATE: 10-MAY-1995
PRIOR APPLICATION NUMBER: US/08/403,852D
FILING DATE: 10-MAY-1995
PRIOR APPLICATION NUMBER: PCT/FR 93/00923
FILING DATE: 25-SEP-1993
PRIOR APPLICATION NUMBER: FR 92/11441
APPLICATION NUMBER: FR 92/11441
FILING DATE: 25-SEP-1992
ATTORNEY/ACENT INFORMATION:
NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 03806.0054-00000
TELECOMMUNICATION INFORMATION:
TELEPAY: (202) 408-4400
INFORMATION: (202) 408-4400
                                                                                                                                                                                                                                 Query
DB:
                           ঠ
                                                                 В
                                                                                                Ś
                                                                                                                                밁
                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
   밁
                                                                                                                                                                                              US-10-089-514-2 (1-686) x US-08-403-852D-9 (1-645)
                                                                                                                                                                                                                                                                                                                  Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                   US-08-403-852D-9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LELEFAX: (202) 408-4000
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 645 base pairs
TYPE: nucleic acid
STRANDEDNESS: doub1-
TOPOLOGY.
                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Zagorec, Monique
APPLICANT: Debussche, Laurent
APPLICANT: De Crecy-Lagard, Valerie
TITLE OF INVENTION: Polypeptides Inv
TITLE OF INVENTION: Biosynthesis Of
TITLE OF INVENTION: Coding For These
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE NO NOTE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: FORM PC COMPUTER: PC-DOS/MS-DOS
SOFTMARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                  Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
STREET: 13
                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: S.pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: Washington
STATE: D.C.
COUNTRY: USA
   190
                                                                   130
                              39
                                                                                                21
                                                                                                                                  70
                                                                                                                             20005-3315
                  ArgLeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAsp 58
                                                                                GlyGluAlaThrGlyGlnProProValValValProAsnAsp-----AlaAspTrpSer
GCCCTGGCGCCGGGCGACTTCGACAACGTCGTCTCACCCGGCCCCGGCCACCCCGCC 249
                                                               GCCGAGGTGAACGGCGCCGCTCCGCTCGTCGTCCGCAACGACGACACCCGCACCTGGCAG 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    E: Finnegan, Henderson, Farabow, 1300 I Street, N.W., Suite 700
                                                                                                                                                                                                                                                                                                                                                                                               CDS
61..645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDNA
                                                                                                                                                                                                                                 7.15e-48
556.00
68.06%
55.50%
15.56%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Polypeptides Involved In The
Biosynthesis Of Streptogramins, Nucleotide Sequences
Coding For These Polypeptides And Their Use
                                                                                                                                                                                                                                                                                                                                                                               /product= "gene papA'
                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Garrett
                                                                                                                                                                                                                                 106
24
59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R٦
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dunner
                                                                                                38
                                                                                                                             129
                                                                                                                                                               20
```

```
밁
                                                                                                                                                                                         S
                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                    á
                        S
                                                      밁
                                                                          ð
                                                                                                                                     Ś
                                                                                                                                                                   밁
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                   430
                                                                                                                                                                                    119 GlyLeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuPro
                                                                                                                                                                                                                        370
                                                                                                                                                                                                                                                                               310
                                                                                                                                                                                                                                                                                                                                  99
                                                                                                                                                                                                                                                                                                        79
CGGATGCTCGCCAACTTCCGCGACCTGTCCCTG
                    GluIleMetAlaAsnPheArgAspLeuAlaLeu 189
                                                       CACCTGCCCCGCTTCGGCGTGCAGTTCCACCCCGAATCGATCAGCAGCGAACACGGCCAC
                                                                      GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg
                                                                                                             GCCGACCTGCGCGCCACCGCCCACACCGCCGACGGCAGCTGATGGCCGTCGCCCACCGC
                                                                                                                              AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg
                                                                                                                                                                   AACATCCCCTCCCCGCTGACCGTGGTCCGCTACCACTCGCTGACCGTCCGGCAACTGCCC
                                                                                                                                                                                                                       CCCGAACCCTTTCACGGCCGCACCAGCGACATCCGCCACGGCAGGGCCAGGGCCTGTTCGCG
                                                                                                                                                                                                                                            ProGluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArg
                                                                                                                                                                                                                                                                               GGGGTGTGCCTGGGCCACCAGGCCCTGTGCCTGCCCGGCCGCCGCCGTCGTCCACGCA
                                                                                                                                                                                                                                                                                                 GlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAla
 642
                                                                                 178
                                                                                                                                      158
                                                                                                                                                                                             138
                                                                                                                                                                                                                        429
                                                                                                                                                                                                                                                   118
                                                                                                                                                                                                                                                                               369
                                                                                                                                                                                                                                                                                                        98
                                                                                                                                                                                                                                                                                                                                     309
                                                       609
                                                                                                             549
                                                                                                                                                                   489
                                                                                                                                                                                                                                                                                                                                                              78
```

Search completed: October 5, 2005, 21:02:45
Job time: 6032.42 secs

This Page Blank (uspto)

```
-MODEL-frame+ p2n.model -DEV=xlh
-Q=/cgn2 1/USPTO_spool h/US10089514/runat_04102005_105745_8055/app_query.fasta_1.1621
-DB=PublIshed_ApplicatIons_NA -QFMT=fastap -SUFFIX=rnpb -MINMATCH=0.1
-LOOPCL=0 -LOOPEXT=0 -UNITS=bits -START=1 -END=-1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100
-THR_MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFMT=pco -NORM=ext -HEARSIZE=500 -MINLEN=0
-MAXIEN=2000000000 -USER=US10089514 @CGN 1 1 920 @runat 04102005_105745_8055
-NCPU=6 -ICPU=3 -NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100
-LONGLOG -DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5
-FGAPEON=6 -FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xgapop 10.0 , X
Ygapop 10.0 , Y
Fgapop 6.0 , F
Delop 6.0 , D
      3573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Published_Applications_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7442561 seqs, 3452328358 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MRTLLIDNYDSFTHNLFQYI......VVKARAMVTALDGSAVAGAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               October 5, 2005, 09:57:48 ; Search time 1509.69 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-089-514-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Copyright
               / Cgn2_6/ptodata/1/pubpna/US09_FUDCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US09B_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US09E_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US09C_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US10A_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US10A_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US10D_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US10D_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US10D_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US10D_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US10F_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/US10T_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6/ptodata/1/pubpna/US07_NEW_PUB.seq:*
6/ptodata/1/pubpna/PCTUS_PUBCOMB.seq:*
6/ptodata/1/pubpna/US08_NEW_PUB.seq:*
6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             o/ptodata/1/pubpna/US07_PUBCOMB.seq:*
6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*
6/ptodata/1/pubpna/US06_NEW_PUB.seq:*
6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
_6/ptodata/1/pubpna/US60_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (without alignments)
3137.453 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14885122
```

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIE

Result

	No.		Match	Ę,	DВ	ID	ripti
į	ב	3573	100.0	8 1	20	US-10-472-587-1	
	N	127.	7.	30	14	-10-126-927-	89
	·ω	3127.5		ຸຜ	14	-10-126-927-6	
	or #	596.	44.7	2196	15	US-10-819-386A-1 US-10-156-761-1167	Sequence 1, Appri Sequence 1167, Ap
ი	σ	1596.5		9025608	15	-10-156-761-1	Sequence 1, Appli
	7	1487	•	1860	ø	9-738-626-11	
	, œ	1487	•	2005	21	10-494-675	
	0 9	1350	41.6 37.8	3309400	် ပ	US-09-738-626-1	Sequence 1, Appli
a	11	1350		1754382	22	US-10-501-282-6651	
o ·		1210.5		3023	19	63-3537	Sequence 3537, Ap
	13	1068.5	•	2523	17	US-10-282-122A-17825	
		1001	28.0		17	22A-1697	
ი	. 15	834	•	- ~	17	21-9	Sequence 9, Appli
	1 6	607 54	10.5	9071708	1017	-10-398-221-	Sequence
	1 F	7.7	•	1363	17	10-282-1223-3	חם
	19	585		9025608		US-10-156-761-1	Sequence 1, Appli
	20	579.5	•	1377	,	10-282-122A	
	S P	E 568	15.9	1377		US-10-282-122A-41824	4 6
	23	566.5		1479	Д,	US-10-156-761-6148	Sequence 6148, Ap
	24	563	•	1323	<u>بــ</u>	10-282	196
	2 0	562.5	15.7	1661	20	US-10-425-115-81629	816
	2 0	201.0	7	1440	; <u>-</u>	-10-202	0 0
	28	557.5		1365	17	10-282	Sequence 39512, A
	29	55	15.6	645	20	-10-716-803-9	9
	90	44.	15.2	1257	17	10-282-	e 33
a	با رد ح	38.	15.1	5721	17	-3850 -3850	Sequence 23903, A
	33	34.	15.0	1337	17	10-282-122A-36	e 36
	34	31.	•	95269	17	-10-398-221	equence 8,
a	ι UI	31.	•	3011208	17	-10-398-22	Sequence 20
	3 J	519.5	14.7	2073	22	US-10-282-122A-6689	29714
	8	50		N.	17	122/	equence
	9	0	•	æ		9-974-300-482	
ი	40	5 5	14.0	v	17	10-398-221-3849	
	בי		•	7777	2 2		sequence 14954, A
	ü	498	13.9	- 0	19	US-10-375-039-15	Sequence 1, Appir
	44	497.5	•	~ 1	19	-297÷465‡	Sequence 1,
	45	489	13.7	1794	18	US-10-275-026A-173	173,
						ALIGNMENTS	
RES	JLT.	_					
Sn.	US-10-472-	587-1	77	polication MC/10472587	100	7007	
	3	-	7	23		3503	

```
GENERAL INFORMATION:
APPLICANT: YANAI, Koji
APPLICANT: SUMIDA,Naomi
APPLICANT: WATANABE, Manabu
APPLICANT: WATANABE, Manabu
APPLICANT: MORIYA, Tatsuki
APPLICANT: MORIYA, Tatsuki
APPLICANT: MORIYA, Taksuki
APPLICANT: MORIYAN, Takseshi
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods for INVENTION: Producing The Same And Novel Biosynthesis Genes
TITLE OF INVENTED: 2003-1302A/MMC/00144
CURRENT APPLICATION NUMBER: 2003-09-22
PRIOR APPLICATION NUMBER: 82227/2001
```

Sequence 1, Application US/10472587 Publication No. US20040214274A1

```
; PRIOR FILING DATE: 2001-03-22; NUMBER OF SEQ ID NOS: 40; SOFTWARE: PatentIn Ver. 2.1; SEQ ID NO 1; LENGTH: 2061; TYPE: DNA; ORGANISM: Streptomyces venezue: PEATURE: NAME/KEY: CDS; LOCATION: (1)..(2058)
US-10-472-587-1
                                                                                                                                                                                                                                                                                                                                                           Score:
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                         8 8 8 8 8 8 8
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores: Pred. No.:
음 성
                       밁
                                  Ş
                                                  뫄
                                                           5
                                                                                                                                                                                                                                                                                                                                               US-10-089-514-2 (1-686) x US-10-472-587-1 (1-2061)
                                                                                                                                                          361
                                                   601
                                                                             541
                                                                                                       481
                                                                                                                                 421
                                                                                                                                                                      121
                                                                                                                                                                                                 101
           241
                          661
                                     221
                                                               201
                                                                                          181
                                                                                                                   161
                                                                                                                                             141
                                                                                                                                                                                     301
                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                              241
721
                                                                                                                                                                                                                           18
                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                              41
                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                        21
                                                                                                                                                                                                                                                                                                                     MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                       GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                  SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                              MetAlaAsnPheArgAspLeuAlaLeuAl
                                                                                                        CCGCTGTGGGGGCGTCCAGTTCCACCCGGAGTCCATCGGCAGCACTTCGGCCGGGAGATC
                                                                                                              ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                           CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAG
                                                                                                                                                                  ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                     cccarecaceecceeercrcceaeereceecacaceeceaeeacercrrcceeeeeccrc
                                                                                                                                                                                            ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                             ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGGCACGGCGCCACGGGCCGAC
                                                                                                                                                                                                                                                                                                                                                           3573.00
100.00%
100.00%
100.00%
20
                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                    |aHisHisArgAlaArgArgHisGlyAlaAsp
||||||||||||||||||||
                                                                                                                                                                                                                                                                                                                                                           2061
686
0
0
                          720
                                                   660
                                                                             600
                                                                                                        540
                                                                                                                    180
                                                                                                                                 480
                                                                                                                                              160
                                                                                                                                                          420
                                                                                                                                                                        140
                                                                                                                                                                                     360
                                                                                                                                                                                                 120
                                                                                                                                                                                                              300
                                                                                                                                                                                                                           100
                                                                                                                                                                                                                                                    08
                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                        40
                                                                                                                                                                                                                                                                                                                     60
      유 상 유
                                                                  성 유
                                                                                                                      성 음 성
                                                                                                                                                             В
                                                                                                                                                                          Ş
                                                                                                                                                                                      유왕
                                                                                                                                                                                                                25 A
                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                         유양
                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                              유상
                                                                                                                                                                                                                                                                                                                                                                                                                                                           A 4
                                       5
                                                     밁
                                                                                            δÃ
                                                                                                         뫄
                                                          1681
                                                                                    1621
                                                                                                                                                                 1441
                                                                                                                                                                                            1381
                                                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                                                  1141
                                                                                                                                                                                                                                                                                                                            1081
                                                                                                                                                                                                                                                                                                                                                     1021
      1801
                                                                                                             1561
                                                                                                                                        1501
                                                                                                                                                                                                                                               1261
                                                                     561
                                                                                               541
                                                                                                                                                                                                       461
                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                               381
                                                                                                                                                    501
                                                                                                                                                                                                                                                                                    401
                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                            321
                                                                                                                                                                                                                                                                                                                                                                                                          901
                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        261
                                                                                                            ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr
                                                                                                                                                                                                                                                                       ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCGGGGCCTCTACTCCGGGGCGCTC
             ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                               AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                                         AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                                       GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                           egectregecercegececeaeceaececeaececearectregecarececeae
                                                                                                                                                                                                                                                                                                         GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                  AACAGCGTCTGCGCGATCGGCTCCACGTGCCCCGGCTCTTCGAGGTGGAGACCTAC
                   620
                                                                       580
                                                                                                              1620
                                                                                                                                        1560
                                                                                                                                                                                            1440
                                                                                                                                                                                                        480
                                                                                                                                                                                                                     1380
                                                                                                                                                                                                                                  460
                                                                                                                                                                                                                                                            440
                                                                                                                                                                                                                                                                         1260
                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                   1200
                                                                                                                                                                                                                                                                                                               400
                                                                                                                                                                                                                                                                                                                            1140
                                                                                                                                                                                                                                                                                                                                                      1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                             600
                                                                                                 560
                                                                                                                           540
                                                                                                                                                                              500
                                                                                                                                                                                                                                                                                                                                                                  360
                                                                                                                                                                                                                                                                                                                                                                                                          960
                                                                                                                                                                                                                                                                                                                                                                                                                       320
                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                             840
```

```
GENERAL INFORMATION:

APPLICANT: The Scripps Research Institute
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Anderson, John C
APPLICANT: Chin, Jason
APPLICANT: Liu, David R
APPLICANT: Magliery, Thomas
APPLICANT: Meggers, Eric L
APPLICANT: Meggers, Eric L
APPLICANT: Meghers, Eric L
                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
DB:
              Ś
                                          밁
                                                                 ð
                                                                                                 밁
                                                                                                                     S
                                                                                                                                                      ₽
                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Streptomyces
US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Maggiery, Thomas
APPLICANT: Medgers, Eric L
APPLICANT: Mehl, Ryan A
APPLICANT: Mehl, Ryan A
APPLICANT: Pastrnak, Miro
APPLICANT: Santoro, Stephen W
APPLICANT: Santoro, Stephen W
APPLICANT: Shamay, Zhiwen
TITLE OF INVENTION: In Vivo Incorporation of
FILE REFERENCE: 54-000120US
CURRENT APPLICATION NUMBER: US/10/126,927
CURRENT APPLICATION NUMBER: US/00/285,030
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR FILING DATE: 2002-02-06
NUMBER OF SEQ ID NOS: 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 2
US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                           US-10-089-514-2 (1-686) x US-10-126-927-68 (1-3305)
                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn version 3.1
SEQ ID NO 68
LENCTH: 3305
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 68, Application US/10126927
Publication No. US20030082575A1
                                                                                                                                                                                                                                                                                                           ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     641
                                            118
                 61
                                                                    41
                                                                                                 61
                                                                                                                           21
ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                            GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                   MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGGAGTTCACCGAGACCGTGGTAAAGGCCCGCGCCCATGGTCACCGCCCTCGACGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                         ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                               GGCGAGGCCACCGGGCAGCCCCC---GTCGTGCCCAACGACGCCGACTGGTCGCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGACGGCCAGGCGGAGTTCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGATGGTTCGCCCTCAGCGGCGCCGCCGACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIleValLeu
                                                                                                                                                                                                                                     1.3e-301
3127.50
91.40%
90.09%
87.53%
                                                                                                                                                                                                                                                                                                                                                                 venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          989
                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rceecegecearcerercerereceaceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of Unnatural Amino
                                                                                                                                                                                                                                   3305
618
9
42
17
                 80
                                                                    60
                                                                                                                         40
                                          177
                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1920
                                                                                                                                                                              20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            640
                     Ś
                                                      밁
                                                                         Ş
                                                                                                         片
                                                                                                                                δ
                                                                                                                                                                 밁
                                                                                                                                                                                    Ş
                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                              1117
                                                                                                                                                                   1057
                            421
                                                                                                                                        381
                                                                                                                                                                                             361
                                                                                                                                                                                                                        997
                                                                                                                                                                                                                                                  341
                                                                                                                                                                                                                                                                              937
                                                                                                                                                                                                                                                                                                        321
                                                                                                                                                                                                                                                                                                                                     877
                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                           817
                                                                                                                                                                                                                                                                                                                                                                                                                                                 757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         337
                                                                                                                                                                                                                                                                                                                                                                                                                      281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178
                                                                       AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys
                                                                                                                              GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGlu
                                                                                                                                                                                                                      ProGluLeuProPheGluPheAsnLeuGlyŤyrValGlyŤyrLeuGlyŤyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                            ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAlala
                                                                                                                                                                                                                                                                                                                                                                                                                                               TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                 ArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr
                                                                                                            GGCCTGGCCGTCCGCGCCGAGGCCGACCCCCGCCATGGTCTTCGGGGTCCCCGAG
                                                                                                                                                                   CGCCGGGGCCACGACGACGCCCCGCGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                 ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                           GCGGCGACCCTCTTCAGCTACCTGGAGGAGCAGCTCGAACCGCCGGCGGGTCCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGGGGCTACGAACTCCACGTGCGCCGCGTCGACGTGCTGCCGGACGCCGAAGAGGGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCTGATGGGCGTCCAGTTCCCACCGGAGTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
||||||||||||||||||||||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGCCACGTCGCGACGCGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCGAACCCCTCGCCTGGAGCGACGACGCGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCATGCACGGCCGGGTCTCCGAGGTGCGGCACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGGACTTCGGGATCAGCCGCCGGGCGATC&CCGACAGCGGCCTGCCCGTCCTCGGCGTC
  TCGGCGCTCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCTCGGCGGAA
                            440
                                                                                                                                                                                                                                                   360
                                                                                   420
                                                                                                                                                                   1116
                                                                                                                                                                                                                         1056
  1269
                                                       1227
                                                                                                            1176
                                                                                                                                         400
                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                              996
                                                                                                                                                                                                                                                                                                        340
                                                                                                                                                                                                                                                                                                                                     936
                                                                                                                                                                                                                                                                                                                                                                320
                                                                                                                                                                                                                                                                                                                                                                                           876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            237
```

```
Sequence 67, Application US/10126927
Publication No. US20030082575A1

GENERAL INFORMATION:
APPLICANT: The Scripps Research Institute
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Mangerson, John C
APPLICANT: Liu, David R
APPLICANT: Liu, David R
APPLICANT: Meggers, Eric L
APPLICANT: Mestrank, Miro
APPLICANT: Westrank, Miro
APPLICANT: Santoro, Stephen W
APPLICANT: Santoro, Stephen W
APPLICANT: APPLICANT: OF INVENTION: IN VIVO Incorporation of
FILE REFERENCE: 54-000120US
CURRENT APPLICATION NUMBER: US/10/126,927
                                                                                                                                                                                                                                                                              RESULT 3
US-10-126-927-67
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맒
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                            1990
                                                                                                                                                                                                                                                                                                                                                                                      1930
                                                                                                                                                                                                                                                                                                                                                                                                                                               1870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1270
                                                                                                                                                                                                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          441
                                                                                                                                                                                                                                                                                                                         AlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSsrAlaLeuArgAla
                                                                                                                                                                                                                                                                                                                                                                                                      GluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLeuAspGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AACAGCGTCTGCGCGATCGGCTCCACGTGCCCCGGCTCTTCGAGGTGGGAGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGATGGTTCGCCCTCAGCGGCGCCCCCCCCCACCTCAGCATCGTCATCCGCACCATCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGCGTCTTACCCGGGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGCCTGCGTACGCGCCGCCTTCCCCGGCGGCTCCATGACCGGCGCGCCCAAGAAGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCCCGTGCACCAGCTGGTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGCCCGAGCGGTTCCTCACGATCGGCGCCGACGGCGTCGAGTCCAAGCCCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCAGCCCCGTCCCGTCTGGCGCCCTGCTCGAGTTCCCCGAGCTGTCGGTGCTCAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACATGGTCACCGCGCCGACCGAGGCGACGGCCCTGCCGCTCTACTCCGCGCTGCGCCCGC
                                                                                                                                                                                                                                                                                                                           2007
                                                                                                                                                                                                                                                                                                                                                        686
                                    ę,
                                    Unnatural Amino
                                    Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                               1929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1389
                                                                                                                                                                                                                                                                                                                                                                                     1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1569
                                                                                                                                                                                                                                                                                                                                                                                                                 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT FILING DATE: 2002-04-19
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR FILING DATE: 2001-04-19
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR FILING DATE: 2002-02-06
NUMBER OF SEQ ID NOS: 79
SOFTWARE: PATENTIN VEYSION 3.1
SEQ ID NO 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                           S
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                               В
                                                                   δ
                                                                                                       В
                                                                                                                               δ
                                                                                                                                                                     멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; LENGTH: 12391
; TYPE: DNA
; ORGANISM: Plasmid
US-10-126-927-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-2 (1-686) x US-10-126-927-67 (1-12391)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          No.:
                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                               161
                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                       141
                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                             101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24
 GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                             ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                         SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                        MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                                                                                                  CCGCTGATGGGCGTCCAGTTCCCACCGGAGTTCCATCGGCAGCGACTTCGGCCGGGAGATC
                                                                                                                                                                                                                                                    ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                                                                                                             CTCGAACCCCTCGCCTGGAGCGACGACGGCGTCGTCATGGGCCTGCGGCACCGCGAGAAG
                                                                                                                                                                                                                                                                                                            LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                                                                                                        CCCTCGCCGTTCACCGCCGTGCGCTACCACTCCCTGGCCGCCACCGACCTCCCCGACGAG
                                                                                                                                                                                                                                                                                                                                                                          ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                 CCCATGCACGGCCGGGTCTCCGAGGTGCGGCGACACCGGCGAGGACGTCTTCCGGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                 ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCCTCGAGGACTTCGACGCGATCGTCGTCCCCGGGCCCCGGCAGCCCGGACCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGCGCACGCTTCTGATCGACAACTACGACTCGTTCACCCAGAACCTGTTCCAGTACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                ATGGCCAACTTCCGCGACCTCGCCCTCGCCCACCACCGGCCACGTCGCGACGCGGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pSC101,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.13e-301
3127.50
91.40%
90.09%
87.53%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomycese venezuelae papABC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Greereceaaceaceceaerececeeere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12391
618
9
42
17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -CTCTCGGCGGAA
```

479

160

659

180 539 200 599 359 140 419 100

260

299 120 80

60

200

40

```
1593
                                                                                                                                                                                                                                                                                                                                                              1473
                                                                                                                                                                                                                                                                                                                                                                                                                                   1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1293
   1773
                                                                                                                                            1653
                                                                                                                                                                                                                                                                                        1533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1020
                                                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                                                                           521
                                                                                                                                                                                                                                                                                                                                                                                               501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      261
                                                                                                                                                                                                                                                                                                                                                                                                                                 AsnMetValThrAlaProThrGluAlaThrAlaLeuDroLeuTyrSerAlaLeuArgAla 460
                                                                                                                                                             AlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThr
                                                                                                                                                                                                                                     AsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyr
                                                                                                                                                                                                                                                                                                          GlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeu
                                                                                                                                                                                                                                                                                                                                                                               GlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp 360
CCCATGGAGATCATCGACCGCCTGGAGGAAGGCCCCCCGGGGCGCGTCTTACCCGGGGCGCTC
                        ThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeu
                                                                                          AlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArg
                                                                                                                                                                                                                                                                                        GGCCGGGAGAAGGACCGGGCCGAGAACCTGATGATCGTCGACCTGGTCCGCAACGACCTC
                                                                                                                                                                                                                                                                                                                                                          GGGACCCGCCCCGGGGCGCACCGGCGGAGGAGGACGAGCGGCTCCGCGCCGACCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----GGCGCTCCGCAACGGCGAGTCGTACGAGATCTGCCTGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgileAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThr 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLys 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCCTGGCCGTCCGCGTCCGGCCGAGGCCGACCCCCGCCATGGTCTTCGGGGTCCCCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGACCGCCATCGCCCTCGACCACCAGGAAGGCTGCTGCTACCTGCTGGCCCTCGAC 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGCCTGCGTACGCGCCCTTCCCCCGGCGCCCCATGACCGGCGCGCCCAAGAAGCGA
                                                                                                                                            GCGCCCGTGCACCAGCTGTCTCGACCATCCGGGGACGGCTGCGGCCCCGGCACCAGCACC
                                                                                                                                                                                                               AACAGCGTCTGCGCGATCGGCTCCGTCCACGTGCCCCGGCTCTTCGAGGTGGGAGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGGGGCCACGACGACGCGCCCGCGCCTGGCTGCGGGAGACGGCCGAGACCCTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGAGACCACCGGCGACCCCGCAGTACCGGCCCCGCACGCGCGTTCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGACCTGCCCTTCGAGTTCAACCTCGGCTACGTCGGCTACCTCGGCTACGAGCTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGCGACCCTCTTCAGCTACCTGGAGGAGCAGCTCGAACCGCCGGCGGGGTCCCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1832
                                                                                                                                           1712
                                                                                                                                                                                                                 1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1019
                                                                      1772
                                                                                                                                                                                                                                                                                      1592
                                                                                                                                                                                                                                                                                                                                                          1532
                                                                                                                                                                                                                                                                                                                                                                                                                                 1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1250
                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                               520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            899
```

밁 δ 밁 र् 밁 ঠ 밁 ঠ 밁 Ś 밁 S В Ś 밁 S 밁 Ś 밁 S В Ś 뭣 S 밁 S 밁 ર્ 밁 S 밁 S 밁 Ş 밁 Ś 밁

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Korea advanced Institute of Science and APPLICANT: Shanghai Jiaotong University
APPLICANT: LEE, Sang Yup
APPLICANT: LEE, Sang Yup
APPLICANT: CHEN, SHI
APPLICANT: CHEN, SHI
APPLICANT: ZHOU, KIU Jun
APPLICANT: ZHOU, KIU Jun
APPLICANT: ZHOU, KIU FEN
APPLICANT: ZHOU, KIUFEN
FILE OF INVENTION: Genes for the Synthesis of FR-
FILE REFERENCE: PO03-B015
CURRENT APPLICATION NUMBER: US/10/819,386A
CURRENT APPLICATION NUMBER: WS/10/819,386A
CURRENT APPLICATION NUMBER: WS/10/819,386A
PRIOR APPLICATION NUMBER: WS/10/819,386A
PRIOR FILING DATE: 2003-10-23
NUMBER OF SEQ ID NOS: 28
NUMBER OF SEQ ID NOS: 28
                                                                                                                                                                                           Ş
밁
                   S
                                                      β
                                                                           S
                                                                                                              밁
                                                                                                                                     δ
                                                                                                                                                                    밁
                                                                                                                                                                                                                           片
                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn version 3.2
SEQ ID NO 1
LENGTH: 138203
TYPE: DNA
ORGANISM: Streptomyces sp. FR-
US-10-819-386A-1
                                                                                                                                                                                                                                                                                   US-10-089-514-2 (1-686) x US-10-819-386A-1 (1-138203)
                                                                                                                                                                                                                                                                                                                                                                                       Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 4
US-10-819-386A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1, Application US/10819386A Publication No. US20050089884A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                      18790 CCGGCCGACTTCGGCCTGTGCGCCCGGATCGCCGAGGAGGGCCCGGCTGCCGGTGCTCGGC
                                                                                                                                                                    2013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        621
                          80
                                                                                   60
                                                                                                                                                                                     21 GlyGluAlaThrGlyGlnProProValValValProAsn---AspAlaAspTrpSerArg
ercreccredecchecheedchredecerceccheedceccederedeceedcece
              ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
                                                                     GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly
                                                                                                            ATGCGCACCCTTCTCGTCGACAACTACGACTCGTTCACCTACAACCTCTTCCACCTC
                                                                                                                                                                                                                                          MetArgThrLeuLeuIleAspAsnTyrAsp$erPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCAGTGGCGGGCGCACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGACGGCCGAGTTCGGCGTCGGCGGGCGATCGTGTCCCTCTCCGACCAGGAG
                                                                                                                                                                                                                                                                                                               1.51e-163
1766.00
63.93%
53.89%
49.43%
                                                                                                                                                                                                                                                                                                                                                                                                                                            FR-008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 686
                                                                                                                                                                                                                                                                                                                           Length:
Matchés:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FR-008
                                                                                                                                                                                                                                                                                                          138203
381
71
209
46
13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        640
                           99
                                                                                                                                                                                                39
18909
                                                                                  79
                                                                                                              18789
                                                                                                                                                                    18729
                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1952
                                                       18849
                                                                                                                                                                                                                            18669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1892
```

```
19666 GATCCCGACGCCGTGCTGGTCTTCGCCGACCGGCCCTGGTGCTGGACCACCGCACCCGC 19725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HisProAspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluArgArgArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerAspGlyThrThrArgThrArgArgProPheAsnTyrLeuGluGluGlnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGlu
                GlyGluSerTyrGluIleCysLeuThrAsnMetValThrAlaProThrGluAlaThrAla
                                                                                                  ArgHisAspLysAspAlaTyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsn
                                                                                                                                                                                                                                                                                       GCGGCGGCCTCCGCCACCCTGGAGGCCATCGCCGGGCGG-----GAGCCCGAGCCG
                                                                                                                                                                                                                                                                                                                            ArgGluThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                  CysCysTyrLeuLeuAlaLeuAspArgAlgGlyHisAspAspGlyAlaArgAlaTrpLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyTyrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGGGGCTGCGCACCGAGGTG---CCCGAACTTCCCCTTCGCGTTCGCGCTCGGCTGGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCCCCTCGCCGGACCGCCAAGGCCGACGTGCACGCGGGAACGGTCACGGTGAGA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyProLeuAlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCGACAGCAGCCGTCCCGGGGGGGAGCTGGGCCAGCTCTCCGTGATGGGCGACGCCTCA 19431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuAspSerSerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluVal------ArgArgGlyCysLeuProGlyGluGlyThrThrPheTrp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGCCACGGCGCTCCGGGTC---ATCGCCGAGTCGCTGCCCACGCGCTGGGACGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerProTyrGluLeuHisValArgArgValAspValLeuPro-----AspAlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArg-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGCCGCAGCCGCTGGAGGTGCGGTACCACTCCCTCGCGGTGACGGAACTGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAsp 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGCCCCGTCACGCCACCTCGGCGCTACGGCACGACGCACCGGGCTCTTCGAGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly
                                                                                                                                                                                                                                  AlaMetValPheGlyIleProGluAla---AlaAlaGlyPheGlyProLeuAlaArgAla
                                                                                                                                                                                                                                                                                                                                                                                                   ACCACCTACCTGCTGGCGCTGGTGGAGGACGACGCCGAGGCCACGCGCCTGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCTGCCTGGGCTACGAGTTGAAGGCCGAGTGCGACGCGACGCCGCGCACCGCTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTCGCCTTCGACTCGCTGTTCCGCACCGGCGACCACCCC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGGGGCACGCACGCTCCCGCCCCCCGCGCCCCGGGAGACGACGGCCACCACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---ArgHisGly-----AlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGCCGCTGTGGGGGGTGCAGTTCCACCCCGAGTCGATCGGCACCCAGGACGGCCACCGG 19149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGCTGGAGGCCACCGCCTGGTCGGAGGACGGGTCCTGATGGCGCTGCGCCACCGCACG 19089
                                                                   CGCCACGACCGGGACGGCTACCTGAAGCTGATCGACGTCTGCCAGCAGGAGATAGCCGCC
                                                                                                                                                                               CCCGAGGCGCCCGTGTGCACGACGGGTCCGGTG---GAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 200
                                                                                                                                                                                                                                                                                                                                                                                                   19785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18969
Sequence 1167, Application US/10156761

Publication No. US20030119018A1

GENERAL INFORMATION:

APPLICANT: OMURA, SATOSHI

APPLICANT: IKEDA, HARUO

APPLICANT: HORIKAWA, JUN

APPLICANT: SHIBA, TADAYOSHI

APPLICANT: SHIBA, TADAYOSHI

APPLICANT: SHAKKI, YOSHYUKI

APPLICANT: HATTORI, MASAHIRA

TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES

FILE REFERENCE: 249-262

CURRENT FILING DATE: 2002-05-29

PRIOR APPLICATION NUMBER: US/10/156,761

CURRENT FILING DATE: 2001-05-30

PRIOR APPLICATION NUMBER: US/2001-204089

PRIOR APPLICATION NUMBER: US/2001-204089

PRIOR APPLICATION NUMBER: JP 2001-272697

PRIOR APPLICATION NUMBER: US/2001-272697

PRIOR TILING DATE: 2001-05-30

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-156-761-1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20659 CCGCTGCTGCGTCTCGAC 20679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20119
```

밁

Ş 밁 δ 밁 Ş 밁 S 밁 Ś 덩 Ś 占 5 밁 á 맑 Ş 밁 Ś 밁 Ś В Ś 밁 ş В Ś 문 S

S 밁 S 밁 δ 밁 δ

```
20419 TCGATGACCGGGGCGCCGAAGATCCGCACCATGCAGATCATCGACCGGCTGGAAGGCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20299 GACCCGGTGTTCCAGGTCGAGACGTACGCGACCGTGCACCAGCTGGTCAGTACCGTCACG 20358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19999 TGGGCGGCCTACCGCGCGCTGCGCCGGGTGAGCCCCGCCCCGTTCGCCGCGTTCCTGGAC
                                                                                                                                                                                                       632 SerIleValIleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGly 651
                                                                                                                                                                                                                                                                                                                         612 ProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeu 631
672 AlaMetValThrAlaLeuAsp 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     572 GlyArgLeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGly
                                                                                                           652 AlaIleValSerLeuSerAspGlnGluGluFheThrGluThrValValLysAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                    SerMetThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCGGCTGCGCGAGGACAGCAGCCCGGTGGCGGCGTCCGGGGGGCCTTCCCCCGGCGGA 20418
                                                        GCCGTCATCGCGCTCTCCGACCCGGCCGACCGAGTTCGAGGAGACGGCGGTCAAGGCCCGCC 20658
                                                                                                                                                                       CCGCGCGGTGTCTACTCGGGGCGCCATCGGCTACTTCTCCCTCACCGGCGCGGTGGACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProArgLeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACGCCGCGCTCGTACGCCCCTGGCCACCTGCGAGAAGGACCGCGCGAGAACCTGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyGlyValGluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCGGCCCATGGCCGTCAGCAGCTCTCCGGAGCGGTTCCTGCGCATCGACCGGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuProLeuTyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PheProGluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAsp
                                                                                                                 671
                                                                                                                                                                                                                                                                                                                                                                                                      20478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20238
```

```
; LENGTH; 2196
; TYPE: DNA
; ORGANISM: Streptomyces a
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)...(2196)
US-10-156-761-1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
Pred. No.:
Score:
Score:
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                  Ś
                                                                                                                                                 유 성 유
                                                                                                                                                                                              ş
 유
                           В
                                         ક
                                                       В
                                                                      S
                                                                                      Ъ
                                                                                                    ર્શ
                                                                                                                       밁
                                                                                                                                                                                                              음 성 음
                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                      ઇ
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-2 (1-686) x US-10-156-761-1167 (1-2196)
              221
                                                                                                                                                                                   421
                                                                                                                                                                                                139
                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                              100
                                                                                                                                                                                                                                                                                                                                                     41
                                                             661
                                                                                          109
                                                                                                        194
                                                                                                                                      179
                                                                                                                                                     481
                                                                                                                                                                     159
                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                              241
 781
                               721
                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                        13
                                                                                                                                                                                                                                                                                                                                                                                                     \vdash
                                                                                                                                                                                                                                              Pro---ValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
                                                                                                                                                                                                                                                                                                                                                                      MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                             ---TyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluVal-ArgAr

::: |||||| | ||||:::||||||| ||||||||| TCCCACCGCCTTCACACCGGGCGGATGGACGCCGAGGCGGCCTTCACC
                                                                                        AAGGCCCGTACGTCCGGAACGCCACGACCGAGCCCCCGTGCGGCCCCCGTCCCCAAGC
                                                                                                  ---AlaArgArgHisGlyAla------
                                                                                                                               AGACGTGACTTCGGCATCGTCGGCGAGCTGCTCGCCGCGGCCCCGTGCCCGTGCTGGGC
                                                                                                                                                                                                                                                                                                                     GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                    GTGAAGACCCTGCTCATCGACAATTACGACTCGTACACGTACAACCTGTTCCAGCTGATC
                                                           GCCGAGGGGGCCGGCAGCACCCGCCGTGCTGGTCCCCCGGCCCCGTCGCGTGGCCCCG
                                                                                                                      CGGATGTTCGTGAACTTCCGCGAGCTGACGGCCTCCCCGCGCCCGCGAGACTCGCACGGCC
                                                                                                                                                                                                                                                                             ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.11e-149
1596.50
58.77%
48.49%
44.68%
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2196
354
75
247
55
                                                                          202
                                                                                          660
                                                                                                                                      193
                                                                                                                                                                                   480
                                                                                                                                                                                                   158
                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                138
                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                           99
                                                                                                                                                                                                                                                                                                                                                                                     40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ٠.
                5
                                                                                                                       음 성
                              음 성 음
                                                                            8 8 8
                                                                                                                                                     음 성
                                                                                                                                                                                     8 8 8 8
                                                                                                                                                                                                                                                성 음 성
                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유 성
                                                                  1713
                                                                                                                                                            1533
                                                                                                                                                                                                                        1413
                                                                                                1653
                                                                                                                                                                                                                                                                                                                                                                                                            1077
                                                                                                                                                                                                                                                                                                                                                                                                                                         1017
                                                                                                                                                                                                                                     437
                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                              CATCGGAGCGGTGGACTGCGTACGTGTCTGCTTCCCCGGGAGGTTCGGTGACCGGGGGCGCC
               yThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaPr 597
                                   CAACGACCTGGGCCGGGTCTGCCGGGACCGGGACGGTGAAGGTCACCCGCCTGATGGCGAC
                                                                           9AsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluVa
                                                                                                                             ACTGCGTCGTCTCGACCCGGCGCCGTACCGGGCCTATCTGCGGTGACCTCGATGT
                                                                                                                                                                                                        aLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerVa
                                                                                                                                                                                                                       eCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAl
                                                                                                                                                                                                                                                      -GCACCCCGCCTCGATGCCGTGGAGCCGTGGCTGGTCCGC------GACCGTACGAC
                                                                                                                                                                                                                                                                                            yIleProGluAlaAlaAlaGlyPheGlyPróLeuAlaArgAlaArgHisAspLysAspAl
                                                                                                                                                                                                                                                                                                                  rLeuThrGlyLeuAlaValArgAlaPro---AlaGluProThrProAlaMetValPheGl 397
                                                                                                                                                                                                                                                                                                                                              GAACACCCGGCAGGGCGCACAGCAAGCGGCC---GACTGGCTCGACGCGGCGATGGCCCA
                                                                                                                                                                                                                                                                                                                                                        ----AspArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluTh
                                                                                                                                                                                                                                                                                                                                                                             aGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPheAl
                                                                                                                                                                                                                                                                                                                                                                                                                                         oGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLysAl
||||||||:::|||
| ||||||||| ||||:::|||
| GGGACTGCCGTTCGACTTCACCGGCGGTATGTGGGCTACTTCGGCTACGAGGTGAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThrAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1892
                                     1832
                                                                                                                             1652
                                                                                                                                                                                                                        1472
                                                                                                                                                                                                                                                                                    1352
                                                                                                                                                                                                                                                                                                                                               1253
                                                                                                                                                            1592
                                                                                                                                                                           497
                                                                                                                                                                                          1532
                                                                                                                                                                                                          477
                                                                                                                                                                                                                                                       1412
                                                                                                                                                                                                                                                                    437
                                                                                                                                                                                                                                                                                                                                                                                                                                          1076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1016
                                                                                                                                                                                                                                                                                                                                                                                             359
                                                                                                                                                                                                                                                                                                                                                                                                                          341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      959
```

```
RESULT 6
US-10-156-761-1/c
(S-quence 1, Application US/10156761
; Publication No. US20030119018A1
; GENERAL INFORMATION:
                                                   Š
                                                                                          밁
                                                                                                                         Š
                                                                                                                                                               В
                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc feature
; LOCATION: (4187715)
; OTHER INFORMATION: a, t
US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                      밁
                                                                                                                                                                                                                                 US-10-089-514-2 (1-686) x US-10-156-761-1 (1-9025608)
                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
FULE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR FILING DATE: 2001-05-05
PRIOR FILING DATE: 2001-05-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROS
APPLICANT: SHIBA, TADAYOSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 1
LENGTH: 9025608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Streptomyces avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
                       1470477
                                                                                           1470537
                                                                                                                                                               1470597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       617
                                                        41
                                                                                                                GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                             GTGAAGACCCTGCTCATCGACAATTACGACTCGTACACGTACAACCTGTTCCAGCTGATC
                                                                                                                                                                              MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGAGCCATCGGCTACTTCGGGTGCAGTGGGGGGCGCGACCTCGCCATCGCCAGCCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSe
                    CCGGATCTCCGGGATTTCGCCAACGTGGTGTCGCCGGGGCCCCGGACACCCCGCGAAG
                                                     Pro---ValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   - CACCGCGACCGGATCGCCGGCCTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    uAspGlySerAlaValAlaGlyAlaArg 686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGATCCGGTCGGCGAGTACGACGAGATGCTGCTGAAGACGGCCGCACCGATGCGCGCC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rAspGlnGluGluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAACTGCGCACGATGGAGATCATCGACTCGCTGGAGACCGAGGCCCGCGGGGGTGTACTC
                                                                                                                                                                                                                                                                   2.81e-144
1596.50
58.77%
48.49%
44.68%
                                                                                                                                                                                                                                                                                                                                                                                                                                 ,,
                                                                                                                                                                                                                                                                                                                                                                                                                               ū
                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                 other
                                                                                                                                                                                                                                                                   Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                 or unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2157
                                                                                                                                                                                                                                                                   9025608
354
75
247
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     637
                    1470418
                                                                                      1470478
                                                                                                                                                            1470538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         617
                                  밁
                                                                  Ş
                                                                                                          맑
                                                                                                                                                                            밁
                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
Ş
                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                  1469401 GAACACCCGGCAGGGCGCACAGCAAGCGGCC---GACTGGCTCGACGCGGCGATGGCCCA 1469345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1470297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1470417
                                                                                                                                                                                1469521
                                                                                                                                                                                                                                                  1469581
                                                                                                                                                                                                                                                                                                                        1469638
                                                                                                                                                                                                                                                                                                                                                                                              1469698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1469758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1469877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1469937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1469997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1470057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1470117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1470177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1470237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1470357
378 rLeuThrGlyLeuAlaValArgAlaPro---AlaGluProThrProAlaMetValPheGl 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeu-----
                                                                                                                                                                              CGACTGCGGTTCCGTCAACCGTCATCGGGCCCGAACTCCCGACGCCTGCTGCTTCGC
                                                                                                                                                                                                        aGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPheAl
                                                                                                                                                                                                                                                  GGGACTGCCGTTCGACTTCACCGGCGGGTATGTGGGGCTACTTCGGCTACGAGGTGAAGGC
                                                                                                                                                                                                                                                                              oGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLysAl
                                                                                                                                                                                                                                                                                                                                                       gArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAlaPr
                                                                                                                                                                                                                                                                                                                                                                                                                           rArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThrAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      yAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThrTy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGATGTACACCGACGCGCCC-CGCGCGTTCTGGCTCGACAGCTCCCGGGTCGAGGAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGluGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCCACCGCCTTCACACCCGGCGGATCGACGTGGCCGTGGACGCCGAGGCGGCCTTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---TyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluVal-ArgAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGAGGGGGCCGGGCACCCGCCGTGCTGGTCCCCCGGCCCCGTCGCGTGGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGGCCCGTACGTCCGGAACGCCGACGACCGAGCCCCCGTGCGGCCCCCGTCCCCAAGC 1469938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---AlaArgArgHisGlyAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluIleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArg------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGAGCCTGGAGCCCACCGCCTGGGCGGAGGACGGCGTGCTGATGGGACTGCGGCACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAsp----LeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCCCCCCCACGGCCATCTGTCCACCGTCCGGCACAACGGCCAGGACCTGTTCGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGACGTGACTTCGGCATCGTCGGCGAGCTGCTCGCCGCGGCCCCCGTGCCCGTGCTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly
                                                                                                                                                                                                                                                                                                                        GGCCAGCGTCTTCGACTACCTGAAACGGCAGTTGGTGACCCCGTCAGGTGGAT---GCCAC 1469582
                                                                                                                                                                                                                                                                                                                                                                                            ACAGTCCCGTTTCTCGTTCGGTGACGGCACCGGACCGCTGGCCGAGTTCGTACGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGCCCCAGCAGTTCACCGCGGTCCGCTACCACTCCCTGTCGGTACGGGAACCGCTGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCTGCCTCGGCCACCAGGGCATCGCGGCGGGGGAGCGGGCCTGGGTGACCCCCGGCACCG
                                                                   -AspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -AspSerPro---
                                                                                                                                                                                                                 341
                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                               281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          138
                                                                                                                                             359
                                                                                                                                                                                                                                                  1469522
                                                                                                                                                                                                                                                                                     321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          202
                                                                                                                                                                              1469462
                                                                                                                                                                                                                                                                                                                                                                                            1469639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1469699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1469818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1469878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1470118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1470178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1470238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1470298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1470358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1469759
```

```
US-09-738-626-1111
                                                                                                                                                                                               밁
                                                                                                                                                                                                                               १
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                              RESULT 7
                                                 Sequence 1111, Application US/09738626
Publication No. US20020197605A1
GENERAL INFORMATION:
APPLICANT: NAKAGAMA, SATOSHI
APPLICANT: MIZOGUCHI, HIROSHI
                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                              1468645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1468705
                                                                                                                                                                                               1468467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1468765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1468825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1469005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1469065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1469125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1469245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1469295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1469344
                                                                                                                                                                                                                                                                                                                                                                           637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     417
                                                                                                                                                                                                                       uAspGlySerAlaValAlaGlyAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATCGGAGCGGTGGACTGCGTACGTGTCTGCTTCCCCGGAGGTTCGGTGACCGGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAl
:|||:::||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTACCTCGCGGACATCGGGACCTGCAAGCGGGAACTCAAGGACGGCACCAGTTACGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTCAGTTTCGTCCTCGGCCAAGCCGACCGCCGCGGCGACG-----
                                                                                                                                                                                               -CACCGCGACCGGATCGCCGGCCTGCGG
                                                                                                                                                                                                                                                                  CGATCCGGTCGGCGAGTACGACGAGATGCTGCTGAAGACGGCCGCACCGATGCGCGCC--
                                                                                                                                                                                                                                                                                                                                          GGAGCCATCGGCTACTTCGGGTGCAGTGGGGGGGGGACCTCGCCATCGCCAGCCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAAACTGCGCACGATGGAGATCATCGACTCGCTGGAGACCGAGGCCCGCGGGGTGTACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OLYSLYSArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGAGACGTGCGCCACCGTGCACCAGTTGGTCTCCACCGTCGAGGGGCGGCTGCGCGAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      lGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAACGACCTGGGCCGGGTCTGCCGGGACCGGGACGGTGAAGGTCACCCGCCTGATGGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9AsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluVa
|||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGCTCACCACGACAAGACCCGCGCGCGAGAACCTGGTGATCGTCGACCTGCTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCCGGCTCGTCCCCGAGCGTTTTCTGCGGATCACCCGCGACGGCGTCGCCGAGGCCAG 1469006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACTGCGTCGTCTCGACCCGGCGCGTACGCGGCCTATCTGCGGTTCGGTGACCTCGATGT 1469066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGTCTGACCAACGCGGCCAGGCTGCCCGCCCGTACGACCCCTACGACTTCTACCGGGT 1469126
                                                                                                                                                                                                                                                                                                 rAspGlnGluGluGluPheThrGluThrValValLysAlaArgAlaMetValThrAlaLe 677
                                                                                                                                                                                                                                                                                                                                                                rIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSe
                                                                                                                                                                                                                                                                                                                                                                                                                                               rGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        yThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCCGTCAAGGGCACCGCGCGCGCGGGGGGGGCGGGAGGACGCCCGGCTACGGGA 1468946
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       lLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       eCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    aTyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GCACCCCGCCTCGATGCCGTGGAGCCGTGGCTGGTCCGC-----GACCGTACGAC 1469246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    yIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAl
ANDO, SEIKO
HAYASHI, MIKIRO
OCHIAI, KEIKO
                                                                                                                                                                                               1468441
                                                                                                                                                                                                                                 686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   437
                                                                                                                                                                                                                                                                    1468468
                                                                                                                                                                                                                                                                                                                                                                         657
                                                                                                                                                                                                                                                                                                                                                                                                            1468586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1468646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1468766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1468826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1468886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1469186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         417
                                                                                                                                                                                                                                                                                                                                        1468526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1468706
                                                                                                                                                                                        á
                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                  밁
                                               S
                                                                                    밁
                                                                                                              5
                                                                                                                                                         밁
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-2 (1-686) x US-09-738-626-1111 (1-1860)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-738-626-1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: OZAKI, AKIO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: DNA
ORGANISM: Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENGTH: 1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ĕ
                  532
                                               181 MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                       161
                                                                                                                                                                                          141 LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                         101 ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                         232
                                                                                                                                                                                                                                                                                                                                                                                                                                               172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 CTT---
                                                                                                                                                                                                                                                                                                                                                                                                            81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21 GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              μ
                    ATTAAGAACTTCCTTAATTTAGCGCGCACATATCGC
                                                                                                                      ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                          TTGAAAGCTACAGCTACCAGCGATGATGGTTTGATCATGGCATTGGCACATGAAGTGCTT
                                                                                                                                                                                                                                                     ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                         TGTTTAGGCCACCAGGGCATTGCGTTGGCCTATGGCGGTGATGTTGATTTGGCGCCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                            CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTGATTTTGGTATCTGTGCAGGCGTCATTGAGCGTGCACGCGTTCCGATTTTGGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAAGAGGTTACGGGTCAGGCACCTGTGGTGGTGCCTAATGATCAAGAAATAGATGAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGCGCGTTTTAATTATTGATAATTATGATTCTTCTCACGTTTAATCTCGCCACCTATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                                                               CCTGAAACGTTTGAGGCGGTGCGTTATCACTCGATGGTGGCAACCCGCTTGCCGGAGTCA
                                                                                                                                                                                                                                                                                                     CCGGTCCACGGTGAGGTTTCGCAGATCACCCATGATGGTTCAGGTTTATTTTGCAGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YOKOI, HARUHIKO
TATEISHI, NAOKO
SENOH, AKIHIRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IKEDA, MASATO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.25e-138
1487.00
60.06%
48.52%
41.62%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCGACGCCGTCATCCTCTCACCTGGCCCGGGCCACGCCGGCGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels:
                                                                                                                       180
                                                                                                                                                          471
                                                                                                                                                                                                                                                                    140
                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                         291
                                                                                                                                                                                                                                                                                                                                                                                                            100
                                                                                                                                                                                                                                                                                                                                                                                                                                               231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                     351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
```

```
1432
                                                                                                                            1372
                                                                                                                                                                                                               1312
                                                                                                                                                                                                                                                                                                   1252
                                                                                                                                                                                                                                                                                                                                                                                      1192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1000 AATCTTGTCGCCCCGCGGATACCTGCGTCC----
                                                                                                                                                                                                                                                         499
                                                                                                                                                                                                                                                                                                                                                                                                                           459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                    LeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsn
                                                                                                                                                                                                                                              IleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAsp
                                                                                                                                                                                                                                                                                                                           SerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluAlaAlaAlaGlyPheGlyProLeuAla---ArgAlaArgHisAspLysAspAlaTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyLeu---AlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                         GACTTAGCCCGCGCGCCTTTGCCCCACCACAGTTAAAACATCCAAGCTTTTCGACGTCGAA
                                                                            AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                           ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGACCACAAAACTTCAGGGCACCACTGATGTGGCCCCTCTGGCTGCCTATCTAGCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGCGAATCGTATGAAATCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGAAGCTGGCGCACGCGCACACTTCGAGTCTTCCGGATGCGCACCTCATTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAAACATTCTTTGCCCATTCCTCCCATGCTTTTTGGCTCGATGAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                                                             ATTANAGGCACCAGGCGGGGGGGGGAACAGCGCAAGAAGACCAAGAAATCATTGCTGAG
                                                                                                                                                                                                                                                                                                   AGTTCCTCGCCGGAGCGGTTCATCACCATTGATTCGGCAGGGTATGTGGAATCAAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                 CGTGGGGCCAATCCCACCGCATATGGTGCGTATCTTCAGCTGGGGGGATACCTCTATTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----GGGGAGCAGGAC-----GAGTGGTTTGAAGAACCATCAAGAAGCTGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGATCGCGCCATCGCAGTGGAATCGGATCAG-----GTTCGGTTGCTGGCGTTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGGTCAA-----GGTTTTCGTCTTGGCTGGGTTGGTTACGTTGGTTATGAGCTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----GATTTCTTCACCTGGCTAAAGGAGGATCTCGCCGCCAAC----TCAGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGCAACTCACGGAGAAAACTATTCCGCTCAGCGTTGATTCAGCAGCGGTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ·-----GGACACCTCGCTTTGCAGGTTCGAGATTCCAAAGATGAGTAT
                                                                                                                                                                                                             1371
                                                                                                                                                                                                                                                                                                                                                                                 1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1071
                                                                                                                                                                                                                                                                                                1311
                                                                                                                                                                                                                                                                                                                                          498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                           478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  723
                                                           밁
                                                                                                Ś
                                                                                                                                              밁
                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
```

S 밁 Ś 밁 Ś 밁 S В Ś 밁 5 밁 δ 밁 Ś 밁 Ş 밁 Ş 밁 Ş 밁 S 밁 á 밁 Ś В 5 B Ś 밁 á 8 Ś 밁 Ś

```
FEATURE:
NAME/KEY: CDS
LOCATION: (101)..(1975)
OTHER INFORMATION: RXA00579
US-10-494-675-25
                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                        US-10-089-514-2 (1-686) x US-10-494-675-25 (1-2005)
                                                                                                                                                                                                                                                                                                         Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Klopprogge, Corinna
APPLICANT: Haberhauer, Gregor
TITLE OF INVENTION: Genes coding for metabo:
FILE REFERENCE: BGI-163US
CURRENT APPLICATION NUMBER: US/10/494,675
CURRENT FILING DATE: 2004-05-04
PRIOR APPLICATION NUMBER: PCT/EP02/12141
PRIOR FILING DATE: 2002-10-31
PRIOR FILING DATE: 2001-11-05
NUMBER OF EQ ID NOS: 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-494-675-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO 25
LENGTH: 2005
TYPE: DNA
ORGANISM: Corynebacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 25, Application US/10494675 Publication No. US20050019877A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Zelder, Oskar
APPLICANT: Pompejus, Markus
APPLICANT: Schroder, Hartwig
APPLICANT: Kroger, Burkhard
                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1492 ACCTACGCCACGTCCACCAACTTGTCAGCACCGTCTCTGCAGAGTTGGGGGCCA---CGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1789 CCGGAGGCTGAGTGGGAGAAATCCGCGTTAAATCACGGCCTCTGCTG 1836
                                                                                                                                                     116 ATGCGCGTTTTAATTATTGATAATTATGATTCTTTCACGTTTAATCTCGCCACCTATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         619 AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   599 LysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGly
                                                                   176 GAAGAGGTTACGGGTCAGGCACCTGTGGTGGTGCCTAATGATCAAGAAATAGATGAGAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    659 GlnGluGluPheThrGluThrValValLysAlaArgAlaMetVal 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    639 ValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAsp
                        41
                                                                                           21 GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu 40
                                                                                                                                                                              1 MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGTGATCAGAACTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGCGCACCATGGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGGTATTTACTCAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTCCGATTGAGTGCGTGCGCGCAGCATTCCCCCGGTGGTTCGATGACTGGTGCCCCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys
                                                                                                                                                                                                                                                                                     4.69e-138
1487.00
60.06%
48.52%
41.62%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for metabolic
                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pathway proteins
                                                                                                                                                                                                                                                                                  2005
328
78
204
13
                                                                                                                                                       175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1548
                                                                   235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     598
```

밁

```
1145
                                                                                                                                                            1070
                                                                                                                                                                                                                                     1019
                                                                                                                                                                                               361
                                             400
                                                                                                                                                                                                                                                                        341
                                                                                                                                                                                                                                                                                                             959
                                                                                                                                                                                                                                                                                                                                                  321
                                                                                                                                                                                                                                                                                                                                                                                     905
                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                                                                                                                                                                                                                          AlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAsp
                                                                                                                                                                                                                                                                                             GCGGAAGCTGGCGCACGGGCTĠĊĠĊĠĊĠĊĠĊŢĊĞAGŢĊŢŢĊGGGATGCGCACCŢĊĀŢŢŢŢŢ
                                                                                                                                                                                                                                                                                                                                    AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                 CCCGGTCAA-----GGTTTTCGTCTTGGCTTGGGTTACGTTGGTTATGAGCTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                               GluAlaAlaGlyPheGlyProLeuAla---ArgAlaArgHisAspLysAspAlaTyr
                                                                                                                   GlyLeu---AlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
                                                                                                                                                                                           ArgargGlyHisaspaspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                     ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----GATTTCTTCACCTGGCTAAAGGAGCATCTCGCCGCCAAC-----TCAGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAAACATTCTTTGCCCATTCCTCCCATGCTTTTTGGCTCGATGAT------
                                                                                                                                                                                                                                 GCCGATCGCGCATCGCAGTGGAATCGGATCAG-----GTTCGGTTGCTGGCGTTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATAATGTCGGCGAGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTAAGAACTTCCTTAATTTAGCGCGCACATATCGC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTGATTTTGGTATCTGTGCAGGCGTCATTGAGCGTGCACGCGTTCCGATTTTGGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal 80
                                                                                                                                                      -----GGGGAGCAGGAC-----GAGTGGTTTGAAGAAACCATCAAGAAGCTGCAT 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCAGTGGGGTGTGCAATTTCATCCGGAATCTATTGGTGGACAATTCGGCCATCAGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGANAGCTACAGCTACCAGCGATGATGGTTTGATCATGGCATTGGCACATGAAGTGCTT 586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTGAAACGTTTGAGGCGGTGCGTTATCACTCGATGGTGGCAACCCGCTTGCCGGAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGGTCCACGGTGAGGTTTCGCAGATCACCCATGATGGTTCAGGTTTATTTGCAGGCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGTTTAGGCCACCAGGCATTGCGTTGGCCTATGCCGGTGATGTTGATTTGGCGCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTT-----TTCGACGCCGTCATCCTCTCACCTGGCCCGGGCCACGCCGGCGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGCAACTCACGGAGAAAACTATTCCGCTCAGCGTTGATTCAGCAGCGGTTTTT
       GGACACCTCGCTTTGCAGGTTCGAGATTCCAAAGATGAGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     466
                                           418
                                                                                                                                                                                                                                 1069
                                                                                                                                                                                                                                                                                                         1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                   958
                                                                                                                                                                                                                                                                                                                                                                                                                                                              904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        346
                                                                                                                                                                                                                                                                                                                                            RESULT 9
US-09-738-626-1
                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
APPLICANT: HAYASHI, MIKIRO
APPLICANT: YOKOI, HARUHIKO
APPLICANT: YOKOI, HARUHIKO
APPLICANT: TATEISHI, NAOKO
APPLICANT: TATEISHI, NAOKO
APPLICANT: OZAKI, AKTO
APPLICANT: OZAKI, AKTO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-125
CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT APPLICATION NUMBER: JP 99/377484
                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                             APPLICANT: NAXAGAWA, SATOSHI
APPLICANT: MIZOGUCHI, HIROSHI
APPLICANT: AUDO, SEIKO
APPLICANT: HAYASHI, MIKIRO
APPLICANT: OCHIAI, KEIKO
APPLICANT: YOKOI, HARUHIKO
APPLICANT: TATBISHI, NAOKO
APPLICANT: SENOH, AKHHIRO
APPLICANT: SENOH, MASATO
APPLICANT: IKEDA, MASATO
                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                       Sequence 1, Application US/09738626 Publication No. US20020197605A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1247
                                                                                                                                                                                                                                                                                                                                                                                                   1904 CCGGAGGCTGAGTGGGAGGAAATCCGCGTTAAATCACGGCCTCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                      659 GlnGluGluPheThrGluThrValValLysAlaArgAlaMetVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGTGATCAGAACTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGCGCACCATGGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGGTATTTACTCAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTCCGATTGAGTGCGTGCGCAGCATTCCCCCGGTGGTTCGATGACTGGTGCCCCAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTANAGGCACCAGGCCGCGTGGGCGAACAGCGCAAGAAGACCAAGAATCATTGCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGACCACAAAACTTCAGGGCACCACTGATGTGGCCCCTCTGGCTGCCTATCTAGCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCTACGCCACAGTCCACCAACTTGTCAGCACCGTCTCTGCAGAGTTGGGGCCA----CGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGTGGGGCCAATCCCACCGCATATGGTGCGTATCTTCAGCTGGGGGATACCTCTATTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                                                                                                                                                                                                HIROSHI
```

1783

618

1903

638 1843

658

1723

1663

1606

558

518 1486 538

1546

498

1306 478 1366

1426

458

1246

밁

 5 8 5 8 5

밁

음 성

ફ 밁 S 밁 ઇ 밁 δ 밁 δ 밁 8 닭 Ś 밁 S 밁 Ś 문 δ 밁 8

밁

```
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: Patentin ver. 3.0
SEQ ID NO 1
LENGTH: 3309400
TYPE: DNA
ORGANISM: Corynebacterium glutamicum
US-09-738-626-1
                  Ś
                                                   В
                                                                                Ś
                                                                                                                    В
                                                                                                                                                  Ś
                                                                                                                                                                                  В
                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-2 (1-686) x US-09-738-626-1 (1-3309400)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                      1052492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1052192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1052081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1052021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1052252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1052141
                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41
GlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyrLeuThr
                                                 GAAACATTCTTTGCCCATTCCTCCCATGCTTTTTTGGCTCGATGAT---
                                                                                                                                                                                                                                                                                                                  TIGAAAGCTACAGCTACCAGCGATGATGGTTTGATCATGGCATTGGCACATGAAGTGCTT
                                                                                                                                                                                                                                                                                                                                          LeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArgGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGTTTAGGCCACCAGGGCATTGCGTTGGCCTATGGCGTGATGTTGATTTGGCGCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGCGCGTTTTAATTATTGATAATTATGATTCTTTCACGTTTAATCTCGCCACCTATGTG 1052080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetArgThrLeuIeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                                                                                                                                                                                  ATTAAGAACTTCCTTAATTTAGCGCGCACATATCGC-
                                                                                                                                                                                                                 MetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGlyAlaAsp
                                                                                                                                                                                                                                                                       ProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArgGluIle
                                                                                                                                                                                                                                                                                                                                                                                     CCTGAAACGTTTGAGGCGGTGCGTTATCACTCGATGGTGGCAACCCGCTTGCCGGAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGATTTTGGTATCTGTGCAGGCGTCATTGAGCGTGCACGCGTTCCGATTTTGGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAAGAGGTTACGGGTCAGGCACCTGTGGTGGTGCCTAATGATCAAGAAATAGATGAGATG
                                                                           ArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerValLeuGlu
                                                                                                                                                  SerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGluValArg
                                                                                                                                                                                                                                                      CCGCAGTGGGGTGTGCAATTTCATCCGGAATCTATTGGTGGACAATTCGGCCATCAGATC
                                                                                                                                                                                                                                                                                                                                                                                                               ProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAspGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTT-----TTCGACGCCGTCATCCTCTCACCTGGCCCGGGCCACGCCGGCGTTGCG
                                                                                                                   TGGCAACTCACGGAGAAAACTATTCCGCTCAGCGTTGATTCAGCAGCGGTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.64e-134
1487.00
60.06%
48.52%
41.62%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      78
204
66
13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3309400
328
                                                                                                                                                                                                                                                                                                                                                                                                                    140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100
                  260
                                                                                  240
                                                                                                                   1052641
                                                                                                                                                                                                                                                                                                                   1052491
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1052371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1052311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1052251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1052140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       40
                         Ş
                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
 뭐
                                                             밁
                                                                                                Ś
                                                                                                                                 밁
                                                                                                                                                            5
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
 1053629 CTGCGCACCATGGAGATCATCGATGAGCTGGAGGCAGCTCCTCGCGGTATTTACTCAGGT
                                                                                                                                                                                                  1053452
                                                                                                                                                                                                                                                                   1053392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1053212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1053152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1053092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1053020 AATCTTGTCGCCCCGCGGATACCTGCGTCC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1052975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1052864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1052924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1052744 CATAATGTCGGCGAGGGG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   381 GlyLeu---AlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIlePro
               LysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGly
                                                             ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr
                                                                                                                                                                                                  GACTTAGCCCGCGGCGCTTTGCCCACCACCACTTAAAACATCCAAGCTTTTCGACGTCGAA
                                                                                                                                                                                                                            AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu
                                                                                                                                                                                                                                                                ATTAAAGGCACCAGGCCGCGTGGGCGAACAGCGCAAGAAGACCAAGAAATCATTGCTGAG
                                                                                                                                                                                                                                                                                                                                                 AGTTCCTCGCCGGAGCGGTTCATCACCATTGATTCGGCAGGGTATGTGGAATCAAAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                    SerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGACCACAAAACTTCAGGGCACCACTGATGTGGCCCCTCTGGCTGCCTATCTAGCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCGACAAAATTCGCAGAGCCCAGGAGCTGATTACTCGCGGCGAATCGTATGAAATCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluAlaAlaAlaGlyPheGlyProLeuAla---ArgAlaArgHisAspLysAspAlaTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGGAAGCTGGCGCACGGCCACACTTCGAGTCTTCCGGATGCGCACCTCATTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaGluThrThrGlyAspProAlaHisArgSerProHisProAspAlaAlaPheLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValProValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThrArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTGGGGCCAATCCCACCGCATATGGTGCGTATCTTCAGCTGGGGGATACCTCTATTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGATCGCGTCGCAGTGGAATCGGATCAG----GTTCGGTTGCTGGCGTTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCTACGCCACAGTCCAACTTGTCAGCACCGTCTCTGCAGAGTTGGGGGCCA----CGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GATTTCTTCACCTGGCTAAAGGAGGATCTCGCCGCCAAC----TCAGTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGACACCTCGCTTTGCAGGTTCGAGATTCCAAAGATGAGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----GAGTGGTTTGAAGAAACCATCAAGAAGCTGCAT 1053019
 1053688
                                618
                                                                                                                                                                                                                                                                                                                                                                                                                                   498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      438
                                                                 1053628
                                                                                                                                 1053568
                                                                                                                                                                                                  1053511
                                                                                                                                                                                                                                                                                                                                   1053391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1053271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1053211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1053151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1053091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1053049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1052923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1052809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                   1053451
                                                                                                                                                                                                                                                                                                                                                                                                    1053331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1052863
```

```
APPLICANT: CANCHICHAEL, JOHN CALHOUN
APPLICANT: EAGURSKY, ROBERT JOHN
APPLICANT: ENGURSKY, ROBERT JOHN
APPLICANT: RUSSELE, DAVID PARRISH
APPLICANT: FLETCHER, LEAH DIANE
TITLE OF INVENTION: PLOTOCOCCUS OTITIDIS OPEN READING FRAMES (ORFS) ENCO
TITLE OF INVENTION: POLYPEPTIDE ANTIGENS, IMMUNOGENIC COMPOSITIONS AND U
FILE REFERENCE: AM100780 L2
CURRENT PAPLICATION NUMBER: US/10/501,282
CURRENT PAPLICATION NUMBER: 60/433,777
PRIOR APPLICATION NUMBER: 60/333,777
PRIOR APPLICATION NUMBER: 60/333,777
PRIOR APPLICATION NUMBER: 60/336,772
PRIOR APPLICATION NUMBER: 60/36,742
PRIOR APPLICATION NUMBER: 60/426,742
PRIOR FILING DATE: 2002-11-29
PRIOR APPLICATION NUMBER: FCT/US02/36123
PRIOR APPLICATION NUMBER: PCT/US02/36123
PRIOR APPLICATION NUMBER: PCT/US02/36123
SOFTWARE: Patentin version 3.2
LENGTH: 2046
TYPE: DNA
ORGANISM: Alloiococcus otitidis
FRATTURE.
                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                             Ś
                         ર્
                                                                                                                                                          8
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                             망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
 밁
                                                                  밁
                                                                                              δ
                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                US-10-089-514-2 (1-686) x US-10-501-282-17 (1-2046)
                                                                                                                                                                                                                                                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:

, NAME/KEY: CDS

; LOCATION: (22)..(2043)

US-10-501-282-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 10
US-10-501-282-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 17, Application US/10501282 Publication No. US20050203280A1 GENERAL INFORMATION:
 262
                                                                 202
                                                                                                                                  142
                              80
                                                                                               60
                                                                                                                                                                40
                                                                                                                                                                                                 82
                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                22
                                                                                                                                                                                                                                                             MetArgThrLeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIle
                  ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
                                                                                                                                                                                                                       GlyGluAlaThrGlyGlnProProValValValProAsnAsp---AlaAspTrpSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGGAGGCTGAGTGGGAGGAAATCCGCGTTAAATCACGGCCTCTGCTG
ATTTGCCTGGGCCACCAGGGCATTTATTATTATAACGGTGGCAACTTAGTGGGGGCTGAT
                                                                                   LeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
                                                                                                                                                                                              GGAAGGTCACAGGGAAAGAGCCCATGGTGATAAAAAATGACCAGATGACCTACCAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCTTGGGATATTTTTCCCTCGACGGCGCAGTTGATCTCTCCATGGTGATCAGAACTCTC 1053748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAgpLeuSerIleValIleArgThrIle
                                                             GACAAGGACTTCGGCTTGTGCCGGCAAGTAATTGAAAAGCTTGACAAGCCTATCTTTGGC
                                                                                                                                  CTATTGGATCTCGACTTTGATAATGTCATTATTTCACCGGGGCCCGGTAGTCCGGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlnGluGluGluPheThrGluThrValValLysAlaArgAlaMetVal 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.31e-124
1350.00
58.71*
43.34*
37.78*
                                                                                                                                                                                                                                                                                                                                                                                Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                              2046
296
105
248
34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AND USES 7
                              99
                                                                                                                                201
                                                               261
                                                                                               79
                                                                                                                                                               59
                                                                                                                                                                                                                                                                81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 THEREOF
                                       δ
                                                                             밁
                                                                                                    S
                                                                                                                                            뭥
                                                                                                                                                                           Ś
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                             뭐
                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                상, 심
                 1258
                                                                                                                                                                                                                                                                                                                                               1006
                                              435
                                                                                                               415
                                                                                                                                                                                                                                             375 ThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaMet 394
                                                                                                                                                                                                                                                                                                                                                                                                                              886 AMATGGCCTTATGAGCCGGCCTTGCCCTTTGACTTTCAGCTAGGCTATATTGGCTATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100 GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              772 CACACCTTAAAATACGATGTCGACCAAAAAGAAGTGAAAAAAACAAGATAGCCAGTCCGCA
             GTCAAAGACAGGCTCAAG----CAGGCAGTCAAAGTTCAGCAAGAAGGA------
                                                                                                                                                                                                                                                                              TyrLeuLeuAlaLeuAspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGlu 374
                                                                                                                                                                                                                                                                                                                                             GATGCCTACTTTACTTATTGTGACCGGCCTTGGTCTATGACCACCAGGAAGAGGACCTT
                                                                                                                                                                                                                                                                                                                                                                            AspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCys
                                                                                                                                                                                                                                                                                                                                                                                                              GGCTATGAGGTCAAAAAAGATACAGTTCAAGTCCACAACAAGCACCAGTCACCCTATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrThrArgThr---ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAGGTGGAGCCTGGCTTGTCACGGTTTTCCATCTTTGGCATGGCTGGACCAAAGCGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AACCAATCCAGCCTTTATTATGAAAAAGTTCCGGGAACTAGGGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HisGlyAlaAspSerProTyrGluLeuHisValArgArgValAspValLeuProAspAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyArgGluIleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArg 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisArgGluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPhe 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluLeuGluProLeu-----AlaTrpSerAspAspGlyValValMetGlyLeuArg 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAsp
:::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCCCCATGCATGGTCGGCAGAGTTCGGTCTACCATAATGGGAAAAATATCTTTGACGGC 381
                                                                              AAAGCAGCCTATATCAAAGACATTGAAACCATCCAAGACCTGATCAAGGCTGGGGAAAGT
                                                                                                           LysAspAlaTyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSer
                                                                                                                                                                            ValPheGlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAGTTGAAAGCTTCCAGACTGACATCTTTTCTTACTTA----AAAGCCAACCGACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGAAAAAATGATGGAAAACTTTATGGCCTTGTGCCAGGACTACTAT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CACAAGACCAAGCCCATCTATGGGGTCCAATTCCACCCCGAATCCATTGCCACCCAGTAT
                                                                                                                                               CCAAGAGGCAAGCAAGACTTCCCACGACTGGCCTTCGTCAAA----GAC
                                                                                                                                                                                                                                                                                                                                               1065
                                                                                                                                                                                                                                                                                                                                                                                                              1005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              315
                                                                              1257
                                                                                                             434
                                                                                                                                               1197
                                                                                                                                                                                                               1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 495
                                                                                                                                                                                                                                                                                                                                                                              354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 603
```

```
APPLICANT: CMMICHAEL, JOHN CALHOUN
APPLICANT: CMMICHAEL, JOHN
APPLICANT: RUSSELL, DAVID PARRISH
APPLICANT: RUSSELL, DAVID PARRISH
APPLICANT: FLETCHER, LEAH DIANE
TITLE OF INVENTION: ALLOIOCOCCUS OTITIDIS OPEN READING FRAMES (ORFS) ENCODING
TITLE OF INVENTION: POLYPEPTIDE ANTIGENS, IMMUNOGENIC COMPOSITIONS AND USES THEREOF
CURRENT APPLICATION NUMBER: US/10/501,282
CURRENT APPLICATION NUMBER: 60/333,777
PRIOR APPLICATION NUMBER: 60/333,777
PRIOR FILING DATE: 2001-11-29
PRIOR FILING DATE: 2002-11-18
PRIOR PRILING DATE: 2002-11-18
PRIOR APPLICATION NUMBER: 60/426,742
PRIOR PILING DATE: 2002-11-25
NUMBER OF SEQ ID NOS: 6653
SOPTWARE: PALENTIN VERSION 3.2
SEQ ID NO 6651
LENGTH: 1754382
                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 11
US-10-501-282-6651/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                   Sequence 6651, Application US/10501282 Publication No. US20050203280A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1978 TCCGCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1498
DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGCTATCTGATCCTGAAGAAGAGTTTGATGAAGTTGTTTTAAAAAGCTAAGGGGGCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerLeuSerAspGlnGluGluGluPheThrGluThrValValLysAlaArgAlaMetVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeu :::|||||||||::: ||||::: |||||:::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCTTGCGCAATGATCTGGGCCGTTTTTGTGAAATCGGGTCGGTTGAGGTACCCAAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCACTAAGCCCATCAAGGGGACGGTCAGACGGGGGGACAGATGACCAAGAAGACCCAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITCAAGTTCTTCCATGCATGGAGCGTTTATTAATGTCGACAAGGACCGGGTTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ThrAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCTATTCTGGGACTATTGGCTTTTTAGCCAACAATTCCACTATAGACTTCAACATCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGGATGTAGAGACCTACTCCACCCTCCACCAGCTGGTTACCACGGTTTCAGGCCGGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGATAGAAGGCCTCCGCAGTGAAGAGAGAAACCCAAGGCAGAAAACCTGATGATTGTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCCGGACCAGTGTGGAAGCAGACAAGCAAGCATCGGCCTGGGGGGTGCGATTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGGCGCCTAAAAAAAAGAACCCCTGGAAATTATTGATGACTTAGAAGCAGTTCCCAGAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TACAAACACTTGCGCCAGGAAAGTCCCCGGTCAGTACTCTGCCTTTTTGCCTTTAGATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
                                          5
                                                                                                                     Ş
                                                                                                                                                           밁
                                                                                                                                                                                          δÃ
                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; ORGANISM: Alloiococcus otitidis US-10-501-282-6651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-2 (1-686)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7747 GGGAAGGTCACAGGGAAAGAGCCCATGGTGATAAAAAATGACCAGGTGACCTACCAAGAA 7688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6997 GCAGTTGAAAGCTTCCAGACTGACATCTTTTCTTACTTA-----AAAGCCAACCGACCA 6944
                                                                                                                                                           7117 AAGGTGGAGCCTGGCTTGTCACGGTTTTCCATCTTTGGCATGGCTGGACCAAAGCGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7507 ATCCCCATGCATGGTCGGCAGAGTTCGGTCTACCATAATGGGAAAAATATCTTTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7627 GACAAGGÁCTTCGGCTTGTGCCGGCAAGTAÁTTGAAAAGCTTGACAAGCCTATCTTTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     140 GluLeuGluProLeu------AlaTrpSerAspAspGlyValValMetGlyLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100 GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    80 ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60 GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40 LeuProValGluAspPheAspAlaIleValValSerProGlyProGlySerProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21 GlyGluAlaThrGlyGlnProProValValValProAsnAsp---AlaAspTrpSerArg
                                                                                                                                                                                                                                                               GluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACAAGACCAAGCCCATCTATGGGGTCCAATTCCACCCCGAATCCATTGCCACCCAGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HisArgGluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThr
                                                                                                                                                                                                                                      CAAGACCTCTACGATCAATTGGCCAAAATTGATGACCAAGTACTTTGGCTCGACTCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                               GlyArgGluIleMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuProAsp
                                                ThrThrArgThr---ArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArg
                                                                                    CACACCTTAAAATACGATGTCGACCAAAAAGAAGTGAAAAAACAAGATAGCCAGTCCGCA
                                                                                                                                                                                              SerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAla
                                                                                                                                                                                                                                                                                                                                              HisGlyAlaAspSerProTyrGluLeuHisValArgArgValAspValLeuProAspAla
                                                                                                                                                                                                                                                                                                                                                                                GGGAAAAAATGATGAAAACTTTATGGCCTTGTGCCAGGACTACTAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATAGACCAAGGCTTTGAAGTCAACCGCTACCACTCCATTGTTTTGTGAAGAC-----AAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTTGCCTGGGCCACCAGGGCATTTATTATTATAACGGTGGCAACTTAGTGGGGGGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTATTGGATCTCGACTTTGATAATGTCATTATTTCACCGGGGCCCGGTAGTCCGGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     x US-10-501-282-6651 (1-1754382)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.41e-120
1350.00
58.71%
43.34%
37.78%
                                                                                                                                                                                                                                                                                                           -AACCAATCCAGCCTTTATTATGAAAAAGTTCCGGGAACTAGGGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         296
105
248
34
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1754382
                                                                                    6998
                                                                                                                                                                                                                                      7118
                                                                                                                                                                                                                                                                                                             7178
                                                                                                                                                                                                                                                                                                                                                  216
                                                                                                                                                                                                                                                                                                                                                                                                                                                               7274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7628
                                                                                                                                                                                                  256
                                                                                                                                                                                                                                                                         236
                                                                                                                                                                                                                                                                                                                                                                                      7226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79
```

5852

With

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6391 ACCACTAAGCCCATCAAGGGGACGGTCAGACGGGGGACAGATGACCAAGAAGACCAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6823
                                                                                                                                                                                                                                                                                                                                6511 TACAAACACTTGCGCCAGGAAAGTCCCGGTCAGTACTCTGCCTTTTTGCCTTTAGATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          455 TyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPheProGlu 474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeu
SerLeuSerAspGlnGluGluPheThrGluThrValValLysAlaArgAlaMetVal
                                              ATCCGGACCAGTGTGGTGGAAGCAGACAAGGCATCGGCCTGGGGGGTGCGATTGTC
                                                                                                                                     ATCTATTCTGGGACTATTGGCTTTTTAGCCAACAATTCCACTATAGACTTCAACATCGTC
                                                                                                                                                                         ValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVal
                                                                                                                                                                                                                                   GGGCGCCTAAAAAAAGAACCCTGGAAATTATTGATGACTTAGAAGCAGTTCCCAGAGGG
                                                                                                                                                                                                                                                                                                                                                     ArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThr
                                                                                                                                                                                                                                                                                                                                                                                                                       ATGGATGTAGAGACCTACTCCACCCTCCACCAGCTGGTTACCACGGTTTCAGGCCGGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTCAAGTTCTTTCCTCTTCCATGGAGCGTTTTATTAATGTCGACAAGGACCGGGTTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TATGAAGTTTGCTTGACCAACCGGCTGGATATTGAGGGTCAGATTGATGGCCTCGCTTAT 6512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGCCTACTTTACTTATTGTGACCGGCCTTGGTCTATGACCACCAGGAAGAGGACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTATGAGGTCAAAAAAGATACAGTTCAAGTCCACAACAAGCAGCAGTCACCCTATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyTyrGluLeuLysAlaGluThrThrGly---AspProAlaHisArgSerProHisPro 334
                                                                                    IleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleVal
                                                                                                                                                                                                                                                                               GlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeu :::||||||||::: ||||:::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluSerLysProlleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrGluIleCysLeuThrAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ------CCAAGAGGCAAGCAAGACTTCCCACGACTGGCCTTCGTCAAA---GAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCAAAGACAGGCTCAAG----CAGGCAGTCAAAGTTCAGCAAGAAGGA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TyrLeuLeuAlaLeuAspArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGlu 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AspAlaAlaPheLeuPheAlaAspArgAlaIleAlaLeuAspHisGlnGluGlyCysCys 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ANATGGCCTTATGAGCCGGCCTTGCCCCTTTGACTTTCAGCTAGGCTATATTGGCTATATC 688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCTTGCGCAATGATCTGGGCCGTTTTTGTGAAATCGGGTCGGTTGAGGTACCCAAACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGATAGAAGGCCTCCGCAGTGAAGAGAAAACCAAGGCAGAAAACCTGATGATTGTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ValPheGlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAsp 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaMet 394
                                                5912
                                                                                                                                                                                                                                                                                                                                6092
                                                                                                                                                                                                                                                                                                                                                                                                                         6152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6572
                                                                                                                                                                                                                                                                                  614
                                           밁
                                                                                    8
                                                                                                                                          밁
                                                                                                                                                                       Ş
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-089-514-2 (1-686) x US-10-437-963-3537 (1-3023)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: Clone ID: PAT_MRT4530_10502C: US-10-437-963-3537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              정, 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-437-963-3537/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
APPLICANT: Wu, Wei
APPLICANT: Wu, Wei
APPLICANT: Boukharov, Andrey A
APPLICANT: Barbazuk, Brad
APPLICANT: Li, Ping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Rice Nucleic Acid Molecules and Other Molecules Associated
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53221)B
CURRENT APPLICATION NUMBER: US/10/437,963
CURRENT FILING DATE: 2003-05-14
NUMBER OF SEQ ID NOS: 204966
SEQ ID NO 3537
LENGTH: 3023
TYPE: DNA
ORGANISM: Oryza sativa
FEATURE:
NAME/KEY: unsure
LOCATION: (1)..(3023)
OTHER INFORMATION: unsure at all n locations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 3537, Application US/10437963
Publication No. US20040123343A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2822 TCCGTCGTCAACGGCGTGCCGCCGGTGGTGGTGGGCAACGAC---GAGTGGACGTGGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5851 TCCGCCTTG 5843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5911 ATGCTATCTGATCCTGAAGAAGAGTTTGATGAAGTTGTTTTAAAAGCTAAGGGGGCCTTG
                                                                                                                                                                                                                                   2705 CCGGGATCTCCGGCCTGCCCTAGCGACATAGGTATAGGCCTGCGGATACTTTGCGAGTGT
                                                                                                                                                                                                                                                                                                                             2765 GACGTGTACAGGTGGGTGTACAAGGAGAGGGCCTTCGACAACATCGTCATCTCGCCTGGC
113 GlyGluAspValPheArgGlyLeuPro-----SerProPheThrAlaValArg 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        675 ThrAlaLeu 677
                                                                                                                                                                    74 Gly---LeuProValLeuGlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGly 92
                                                                                                                                                                                                                                                                        54 ProGlySerProAspArgGluArgAspPheGlyIleSerArgArgAlaIleThrAspSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                  21 GlyGluAlaThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeu
                                              GCTAAAATCGTCCATGCTCCTGAAGCTATACATGGCCGGCTTAGTGAACTTGAACTAAAT 2526
                                                                                                                                     GAGATATACCCATCCTGGGTGTCTGCCTTGGCCACCAGGCCCTGGGATTTGTCCATGGT
                                                                                  GlyThrValGlyLeuAlaProGluProMetHisGlyArgValSerGluValArgHisThr 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3:27e-110
1210.50
49.04%
36.00%
33.88%
                                                                                                                                                                                                                                                                                                                                                   -----GluāspPheAspAlaIleValValSerProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matchès:
Conservative:
Mismatches:
Indels:
Gaps:
```

밁 Ś

৪ 문 S 뮹 ठ Ś 밁 Ś

멍

2706

73

2646

2766

40

2823

20

Ś

밁

Ś

맑

á

밁 Ś 밁

밁

Ś

밁 S श

Ś

Ś

δ

S

ঠ 밁

밁

346 AlaLeuAspHisGlnGluGlyCysCysTyrLeuLeuAlaLeuAspArgArg 362	AspProAlaHisArgSerProHisProAspAlaAlaPheLeuPheAlaAspArgAlaIle :::	PheAsnLeuGlyTyrValGlyTyrLeuGlyTyrGluLeuLysAlaGluThrThrGly :::	GluGluGlnLeugluArgArgArgValProValAlaProGluLeuProPheglu ::::::::::::::::::::::::::::::::::::	ArgGlySerAspGlyThrThrThrArgThrArgArgProPhePheAsnTyrLeu 	GluTyrLeuThrTyrArgValAlaAspGlyValVal8erVal:::: ::: :::	SerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAla 	GluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSer	CTCAATCGCATAGGTGGCTCTGAAAACATTTTTTCAGTGCTTTTTGGCCATCATAGCGCT	196ArgHisGlyAlaAspSerProTyrGluLeuHisValArgArgValAsp 211	191 HisHisargalaarg	189Leuala 190 ::: 2105 CAGACACCATTGCTTCAGGAAAGAAGATCAGTTCTCCAGATCTCAAGAACTTTGTTGCA 2046	SerAspPheGlyArgGluIleMetAlaAsnPheArgAspLeuAla	GlyLeuArgHisArgGluLysProLeuTrpGlyValGlnPheHisProGluSerIleGly	GATGGAAAAATGCCCAGCATAAACGATGCAAGTGAGTTACAGCTTACAGCTTTCATG	ACCTIGTGGGGATCATTGGATAACTTATTCGTAACAAACCAGTCAGAGTGCAGTACCACT	147 148	2525 GGATGCTACCTCTTTAATCACATCCCATCAGGTATAAACTCTGGATTCAAGGTAGTGCGC 2466 129 TyrHisSerLeuAlaAlaThrAspLeuProAspGluLeuGluProLeuAlaTrp 146	
RESULT 13 US-10-282-122A-17825 ; Sequence 17825, Application US/10282122A	Qy 657 SerAspGlnGluGluBheThrGluThrValValLysAlaArgAla 672	Qy 637 ThrileValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeu 656	Qy 617 SerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVallleArg 636	Oy 597 ProLysLysArgThrMetGluIleIleAspArgLeuGluGlyDroArgGlyValTyr 616	Qy 577 GlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAla 596	Qy 557 ValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgPro 576 :::	Qy 537 ArgAsnAspLeuAsnSerValCysAlaileGlySerValHisValProArgLeuPheGlu 556	Qy 517 AlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuVal 536	Qy 497 LysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArg 516 Db 1017 1017	477 ValleuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSer :::	Qy 459 ArgAlaIleSexProValProTyrGlyAlaLeuLeuGluPheProGluLeuSer 476	Qy 440 ThrasnMetValThralaProThrGluAlaThralaLeuProLeuTyrSerAlaLeu 458	Qy 420 LysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeu 439	Qy 400 GluhlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeu 419 ::::::	Qy 388AlaGluProThrProAlaMetValPheGlyIlePro 399	Qy 377 GluThrLeuThrGlyLeuAlaValArgAlaPro	aArgAlaTrpLeuArgGluThrAla TAGTTTATGGTTAGCAAATACTGAG	Db 1478 GTGGTTGATCACAACAATGGGGATGTGTACATTTTATCATTACATGATGAATATTCTTCT 1419

Ş

유 성

Дb

음 성

뭥

망

망

B 8 B 8 B 8

음 성 음

성 음 성

유

B & B

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Identification of Essential Genes in FILE REFERENCE: ELITRA, 034A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/230,335
PRIOR TILING DATE: 2000-05-06
PRIOR APPLICATION NUMBER: 60/230,335
                                                                                        밁
                                                                                                                      ঠ
                                                                                                                                                          문
                                                                                                                                                                                         Ś
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                              Ş
                     문
                                                  र्
                                                                                                                                                                                                                                                                                                  US-10-089-514-2 (1-686) x US-10-282-122A-17825
                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; TYPE: DNA ; ORGANISM: Cornyebacterium diptheriae US-10-282-122A-17825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 17825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Publication
GENERAL INFO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlo
APPLICANT: Malone, Cheryl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Remaining Prior Application data removed - See File Wrapper or PALM. NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/267,636
PRIOR FILING DATE: 2001-02-09
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                          No . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 2000-11-27
APPLICATION NUMBER: 60/257,931
FILING DATE: 2000-12-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/230,347 FILING DATE: 2000-09-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/253,625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 2000-10-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/242,578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIPORMATION:
                     184
                                                                                        139
                                                       60
                                                                                                                          40
                                                                                                                                                            79
                                                                                                                                                                                             24
                                                                                                                                                                                                                               19
                     GCAGAAGACGTCGGCATAAGCGCGTGGGTATTACAAACAGCACAGTGCCCAGTGCTGGGC
                                             GluArgAspPheGlyIleSerArgArgAlaIleThrAspSerGlyLeuProValLeuGly 79
                                                                                                                                                         GGGGCCCGCACCCACGTGGTCACCAACAACGTATCCCCAGAGGACATTGATCTAGACCGC
                                                                                                                                                                                       ThrGlyGlnProProValValVal------ProAsnAspAlaAspTrpSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ohlsen, Kari
Zyskind, Judith
Wall, Daniel
Trawick, John
Carr, Grant
Yamamoto, Robert
                                                                                                               LeuProValGluAspPheAspAlaIleValSerProGlyProGlySerProAspArg
                                                                                                                                                                                                                        LeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIleGlyGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Forsyth, R.
                                                                                                                                                                                                                                                                                                                                      1068.50
50.65%
38.75%
29.90%
                                                                                                                                                                                                                                                                                                                                                                                                                       3.94e-96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Carlos
                                                                                    -TACCACGGAATAGTCATCTCACCAGGTCCAGGGCATCCCAGTGTG 183
                                                                                                                                                                                                                                                                                                                                Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                  (1-2523)
                                                                                                                                                                                                                                                                                                                                  2523
267
82
239
101
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      in Microorganisms
                     243
                                                                                                                        59
                                                                                                                                                          138
S
                                  g
                                                                Ś
                                                                                                    밁
                                                                                                                                 S
                                                                                                                                                                         밁
                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                         뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
431 AsnGlyGluSerTyrGluIleCysLeuThrAsnMetValThrAlaProThrGluAlaThr 450
                                                                                                                                                                                                                                             901
                                                                                                                                                                                                                                                                              353
                                                                                                                                                                                                                                                                                                                                                                                     790
                                                                                                                                                                                                                                                                                                                                                                                                                       316
                                                                                                                                                                                                                                                                                                                                                                                                                                                         745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                    GTACGCGACTCCCGAGAACGCTACATGGCTACGATCGAGCGGATCCAAGAAGCGATTCGA
                                                                  AlaArgHisAspLysAspAlaTyrLeuLysArgIleAspGluCysLeuLysGluIleArg
                                                                                                                                     ThrProAlaMetValPheGlyIleProGluAlaAlaAlaGlyPheGlyProLeuAlaArg
                                                                                                                                                                                                                                                                                                                                               HisProAspAlaAlaPheLeuPheAlaAspÁrgAlaIleAlaLeuAspHisGlnGluGly
                                                                                                                                                                                                                                                                                                                                                                                                                GlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArg-----SerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValAlaProGluLeu-----ProPheGluPheAsnLeuGlyTyrValGlyTyrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPheGlyArg 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGGCTGTCCACGGACGCGTAGATACCTTAAATATTGTTGCCGCCGATGAGCTTTTTTGCT 363
                                                                                                      GTGCCCACGGTGCCGAGTTTCAACCCG-----ACTGGTATCGGGCGGTTG---CAC
                                                                                                                                                                                                         ---LeuArgGluThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluPro
                                                                                                                                                                                                                                                                              CysCysTyrLeuLeuAlaLeuAspArgArgGlyHisAspAspGlyAlaArgAlaTrp---
                                                                                                                                                                                                                                                                                                                TTTCCCACGACTGCCATGATGTATTGCACGGAAGTTATTGCGATC------CGTGGG
                                                                                                                                                                                                                                                                                                                                                                                     GGCTACGAGGCTAACGACGCTACCTTTGGCACTGCGGTCCATGCGCCCAAAGCCGGCGGAA 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGGCCCCGGAGGCATGGGCCCCCCG---i-----GGTTGGTACGGCTACATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAspSerSerSerVal 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluileMetAlaAsnPheArgAspLeuAlaLeuAlaHisHisArgAlaArgArgHisGly 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCAGCATGGAAGTCACATCTTCTAATCCCGAGGGATTGTGATGTCGATACGTCATCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGlyLeuArgHisArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyLeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAspLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluProMetHisGlyArgValSerGluValArgHisThrGlyGluAsp---ValPheArg 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgThrArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgArgArgValPro ::::::::|||||| | | | | | | | | | | :::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAspGlyThrThrThr 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProLeuAlaGluTyr 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGGAGCTTTGCTGCAGCCCTGTGGAG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaAspSerProTyrGluLeuHisValArgArgValAspValLeuProAspAlaGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGATCATTGACCGCTTTGTTGACCTATGCACACCGCAGTATCGC-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCAGCCCATGGTGGGGAGTGCAGTTTCATCCGGAATCGATTGCCGGCGATTTCGGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGTGCTTAGGTATGCAGCTGATGGTCACAAGCGAAGGGGGCTGCGTTGATCGTGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGlyLeuAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----GAAGGCACGGCTATCATTGCGATTCCGAGTGGGCAGGTAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTTTCCATGCGTTGGGC---GGCAGGGGAGCACTGCTGGAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GATCGTGCCCAAATCACCGCGCCGAGTTCGCGCTGGGGC
                                                                                                                                                                           -GCGGTCGTGGCGGCGTCGAAAAGC
                                                                                                      1023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              298
                                    1083
                                                                  430
                                                                                                                                       410
                                                                                                                                                                                                           390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        315
                                                                                                                                                                           975
                                                                                                                                                                                                                                             939
                                                                                                                                                                                                                                                                              371
                                                                                                                                                                                                                                                                                                                                                                                                                       332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     666
                                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99
```

```
RESULT 14
US-10-282-122A-16977
                                                                                                                                                                                                                                                                                                                                    Sequence 16977, Application US/10282122A Publication No. US20040029129A1
                                                                                                                                                                                                                                                                                                APPLICANT: Wang, Li
                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
                                                                                          APPLICANT:
                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                       APPLICANT:
TITLE OF INVENTION: Identification of Essei
FILE REFERENCE: ELITRA.034A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
PRIOR APPLICATION NUMBER: 60/191,078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1264
                                                                                                                                                                                                                                                                                                                                                                                                                                  1801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          489
                                                                                    Yamamoto, Ro
Forsyth, R.
Xu, H.
                                                                                                                   Trawic...
Carr, Grant
Carr, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaAspLeuSerIleValIleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluGluGlyProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValHisValProArgLeuPheGluValGluThrTyrAlaProValHisGlnLeuValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyAlaAspGlyGlyValGluSerLysProIleLysGlyThrArgProArgGlyGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuGluPheProGluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ohlsen, Kari
Zyskind, Judith
Wall, Daniel
Trawick, John
                                                                                                                                                                                                                                                                                                                                                                                                                                AAATCCCGGGTGCTTCTCGACCTACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTAGGAGGTGCCATCATCGCGCTTTCAGACCCCGCCGAAGAATGGGCAGAAATCACCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCAGGCGGTTCCATGACTGGGGCGCCCAAACACCGCACCATGCACCTCATCACCGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProGlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCGTCGAAGGGCAACTTCGCCCCACCAGCATGCCTATCGACGTCCTACGCGCCACCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCCGTGTGCCAGAACTATGTGCACTGCACAGCTTTACCACCGTGCACCAGCTGATTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AACCTCATGATCGTCGACCTTGTGCGCAACGACCTCGCCCGCGTCTGCGAATCAGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AsnLeuMetIleValAspLeuValArgAsnAspLeuAsnSerValCysAlaIleGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCGAAGAAGACCGCGCCTTGGCCGACGATCTGCGCACCAACCCCAAAGACCGCGCCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAC---GACCGCATGGTGTCGTCCTCACCGATCAAAGGAACCAGAAAACGCAGCGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCCATCCGGCGCAATGTATCAAGCGCTGAGCACCGCAGTACCTGCGCCCTATGCGTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LysAlaArgAlaMetValThrAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPheThrGluThrValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAAGGCAAACAACGCGGGGTTTACTCCGGATGCATTGGTTATATCGGCGACGATCTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGGTTGTCACCGATGATGTAGCAGTGATTTCCGCGTCACCAGAACGATTTATCACCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaLeuPro----LeuTyrSerAlaLeuArgAlaIleSerProValProTyrGlyAla
                                                                                                                                                                                                                                                         Zamudio, Carlo
Malone, Cheryl
                                                                                                                                                                                                                                          Haselbeck, Robert
                                                                                                                                                                                                                                                                                                  Liangsu
                                                                                                                                                                                                                                                                                  Carlos
                                                                        Essential
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     677
                                                                       Genes in Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
밁
                        5
                                                             뮹
                                                                                                     Ş
                                                                                                                                                밁
                                                                                                                                                                          Ş
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-2 (1-686) x US-10-282-122A-16977 (1-1906)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; ORGANISM: Clostridium US-10-282-122A-16977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-12-72
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID NO 16977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Remaining Prior Application data removed - See File Wrapper or PALM. NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OR FILING DATE: 2000-03-21
OR APPLICATION NUMBER: 60/206,848
OR FILING DATE: 2000-05-23
OR APPLICATION NUMBER: 60/207,727
OR FILING DATE: 2000-05-26
OR APPLICATION NUMBER: 60/230,335
OR FILING DATE: 2000-09-06
OR APPLICATION NUMBER: 60/230,347
OR FILING DATE: 2000-09-09
OR FILING DATE: 2000-09-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scores:
460
                                155
                                                                       400
                                                                                                                                                340
                                                                                                                                                                                117
                                                                                                                                                                                                                         280
                                                                                                                                                                                                                                                                                                220
                                                                                                                                                                                                                                                                                                                                                                         166
                                                                                                                                                                                                                                                                                                                                                                                                                                                  109
                                                                                                                                                                                                                                                           97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  44
                                                                                                                                                                                                                                                                                                                                77 ValLeuGlyValCysLeuGlyHisGlnGlyIleAlaGlnLeuPheGlyGlyThrValGly
                                                                                                                                                                                                                                                                                                                                                                                                           59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24 ThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeuProValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
ATTAGGCATAAGAAATATTTAATAGAAGGAGTACAGTTTCATCCAGAAGCTATTTTGTCA
                     LeuArgHisArgGluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySer
                                                                     ATACAGTTCCAAAAGAATTAGAAATTACAGCAATTACTGATAAAGGGGAAATAATGGGG
                                                                                                ThrAspLeuProAspGluLeuGluProLeuAlaTrpSerAspAspGlyValValMetGly
                                                                                                                                              TTTAGGGGACTTAAAAATCCTTTAAATGTCACTAGGTATCATTACTAATAATTGATTCC
                                                                                                                                                                     PheArgGlyLeuProSerProPheThrAlaValArgTyrHisSerLeuAla-----Ala
                                                                                                                                                                                                                     AAAGCACAACAGCCTGTGCATGGAAAAGTATAATAGTATCAACCATACTAATAAAGGAGTT
                                                                                                                                                                                                                                                     LeuAlaProGluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspVal
                                                                                                                                                                                                                                                                                                                                                                                                       ArgGluArgAspPheGlyIleSerArgArgAlaIleThr-----AspSerGlyLeuPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspPhe--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTAGGGGAAACAGTTGTAGAAAAAGAAAT-----AATGAAATCAAAATAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuLeuIleAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIleGlyGluAla
                                                                                                                                                                                                                                                                                                ATACTAGGAATTTGTTTAGGTCACCAAACTATTGGACATGTTTTTGGAGGAGATATTATA
                                                                                                                                                                                                                                                                                                                                                                       -----AAAGAAGCTGGTATTTGCATAGATATTGTTGAGCATTTTAAGGGGAAAAAAACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACATTGAAGAACTAAATCCAGAGGTAATTGTGTTATCTCCAGGACCGTGTTCTCCA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.51e-89
1001.00
52.52%
36.40%
28.02%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             difficile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----AspAlaIleValValSerProGlyProGlySerProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps:
```

밁 Ś В á 밁 S 밁 8 뭐 Ş 밁 Ś 망 S 밁 Ş 밁 S 밁 Š 밁 8 멍 Ś 밁

116

339

279 96 219 76 165 108 43 23

134

154 399

성 유

254 721 274 752

8 8 8 8 8 8 8 8 8

667

234

610

568

195

175

214

```
sGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAl
                                                                                                                   aSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLy
                                                                                                                                                                           ATTTAGCCCGGCACCATTTGGGGGCATTCTTAAACTTTGAAGATGCACATATATTATCAAA
                                                                                                                                                                                                                                                                                                                                               TGCAGTTCAAAGTGTTAGAGAGTACATAAGACAAGGAGATATATCAAGCTAATTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       uAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAlaTyrLeuLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGAAAAGATAATAGATAATATAGAACAAAGAATATTAAAAGAAGAAGAAAAAAAGGTATAGA 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          alleSerProValProTyrGlyAlaLeuLeuGluPheProGluLeuSerValLeuSerAl
                                                                                                                                                                                                                                                                                                                                                                                   sArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIleCysLeuTh 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TAGCATATGTTATGAA----GAAAAAGAAGTAACACCTATAAGACTT-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pArgArgGlyHisAspAspGlyAlaArgAlaTrpLeuArgGluThrAlaGluThrLeuTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATAGACCATCTTGTGCAAAAAACTTATATAGCTACTCCAAACATAGATATCGAATTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aLeuAspHisGlnGluGlyCysCysTyrLeu------LeuAlaLeuAs 360
      AGGTACTCGTCCAAGAGGGAAAGATAAAAAAGAAGATTTAAGACTTCAACAAGAACTTAG 1440
                                                                                        TTCTCCAGAAAGATTTATAAGATGT---GTTAATAAGAGAATAGAAACTAGACCAATAAA
                                                                                                                                                                                                                                                             ACAAAGGTTCAGTGGAGAAACAGAACTTACAAGCTTTGAATTGTATAGGGACTTAAGAAG
                                                                                                                                                                                                                                                                                              rAsnMetValThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAl 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rGlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGlyIleProGl 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCTGTAGATGATATTGAGATGCCTGATATGTATTTTGGATTTTATAATCATGTAATAGT 948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTATAGGGTTGTAAATGATACTAATCTTCCATTTGTAGGA-----GGTGCTGTGGGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gArgArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGlyTy 314
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pGlyThrThrArgThrArgArgProPhePheAsnTyrLeuGluGlnLeuGluAr 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       oLeuAlaGluTyrLeuThrTyrArgValAlaAspGlyValValSerValArgGlySerAs 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGTGCTATGGATAAAGAAAAATTGGGAAGATATTCTTTTATAAGTAGCCAA-----CC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pSerSerSerValLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyPr 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAATTCTTTTGAGATATTTACT---ATTTTTAGAAATGAACATGACAGTTTTATATTAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                oAspAlaGluGluValArgArgGlyCysLeuProGlyGluGlyThrThrPheTrpLeuAs 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgArgHisGlyAlaAspSerProTyrGluLeuHis-ValArgArgValAspValLeuPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTATCTTATGATTTA--------GGTAATTACATAGAAAATTTACCTAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTT---AAGGTATTAAAGTATAAAGATACTGAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGGTACAT-----GTGTAATATGATAAGAGAGATAAATACTAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ------ProAspAlaAlaPheLeuPheAlaAspArgAlaIleAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----AAATCTAATTTTACAAAGGAAGAATTTAAAAA 1143
                                                                                                                                                                           1323
                                                                                                                                                                                                                                                               1263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            346
                                                                                        1380
                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                  1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: KUNST, Frederik
APPLICANT: GLASER, Philippe
ITITLE OF INVENTION: Listeria innocua, genome and
FILE REFERENCE: 344 702 - US
CURRENT APPLICATION NUMBER: US/10/398,221
CURRENT FILING DATE: 2003-03-27
PRIOR APPLICATION NUMBER: PCT/FR 01/03 061
PRIOR FILING DATE: 2001-10-04
PRIOR FILING DATE: 2001-10-04
PRIOR FILING DATE: 2000-10-04
PRIOR APPLICATION NUMBER: PCT/FR 01/03 061
PRIOR APPLICATION NUMBER: PCT/FR 01/03 061
PRIOR APPLICATION NUMBER: PCT/FR 00/12 697
PRIOR APPLICATION NUMBER: PCT/FR 01/03 061
PRIOR FILING DATE: 2000-10-04
NUMBER 0F SEQ ID NOS: 4025
SOFTWARE: PatentIn version 3.0
IENCETH. 684707
                                                                                                                                                Percent Similarity:
Best Local Similarity:
Query Match:
      밁
                                          á
                                                                                  US-10-089-514-2 (1-686) x US-10-398-221-9 (1-684707)
                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-398-221-9/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 9, Application US/10398221
Publication No. US20040018514A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (1)..(end)
OTHER INFORMATION: n ca
                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
ORGANISM: Listeria
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 684707
    375647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1861 TGAAGAATATCAAGAAACACTTGATAAAGCTAAATCCATAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           620
                                              4
LeuLeuileAspAsnTyrAspSerPheThrHisAsnLeuPheGlnTyrIleGlyGluAla 23
||||||||||:::|||||||:::|||||||
TTATTAATCGATCATAATGACTCATTTACATATATTTATACCAATATTTTTTAGAGCTT 375588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             uGluGluPheThrGluThrValValLysAlaArgAlaMetVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAATGACAAAAAAGTCTACTTTCAAGTTGGAGGAGGAATGACTTGGGATTCTGACCCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         uAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         uGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIleValLe 640
:||| :::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLe 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGTTATATAGGTTTTAATGGTGATATGGATTTTAATATAGCAATTAGAACAATAATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCAGAATATCTAAAACTGGAAGTGTTAAAGTTCCAGAGCTATTTGTAATTGAACCATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGCAAATGTAAATCACTTAGTTTCCACAGTTGTAGGTGAGTTAAAAGATGATAAAGATGC 1620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerTh 580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                uAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTy 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGCAATGGAAATTATAGACGAATTAGAGCCAACGCAAAGAAATGTATATACTGGTTCAAT 1740
                                                                                                                                                                                                                                                                                                                         n can be
                                                                                                                              1.43e-69
834.00
45.14%
33.43%
23.34%
                                                                                                                                                                                                                                                                                                                         апу
                                                                                                                                                                                                                                                                                                                           nucleotide:
                                                                                                                                                Length:
Matchès:
Conservative:
Mismatches:
Indels:
                                                                                                                                Gaps:
                                                                                                                                                                                                                                                                                                                         þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and
                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               applications
                                                                                                                          684707
234
82
224
160
                                                                                                                                                                                                                                                                                                                         ი
                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                674
                                                                                                                                                                                                                                                                                                                         ر
د/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1560
```

밁 S 밁 δ 망 ð 밁 ঠ 닭 ş 밁 S 밁 á 밁 S В ર્ક 문 र् 밁 Ś 문 Ş В

1381

1264

480

1144

440

1069

400

1009

949 360 688

844 334

8 8 8 8 8

394	${\tt luThrAlaGluThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaM}$	374
374902		374902
374	ys Tyr Leu Leu Ala Leu Asp Arg Arg Gly His Asp Asp Gly Ala Arg Ala Trp Leu Arg Gly Arg Gly Arg Gly Ala Trp Leu Arg Gly Arg G	354
374902		374902
354	aAspAr	334
334 374902	yrLeuGlyTyrGluLeuLysAlaGluThrThrGlyAspProAlaHisArgSerProHisP ::::	314 374936
314 374937	rgArgValProValAlaProGluLeuProPheGluPheAsnLeuGlyTyrValGlyT::	295 374954
295 374955	lyThrThrThrArgThrArgArgProPhePheAsnTyrLeuGluGluGlnLeuGluArgA	275 374991
275 374992	GlySe	255 375005
255 375006	erServalLeuGluGlyAlaSerArgPheSerPheLeuGlyAspAspArgGlyProL	236 375053
236 375054	GluGluValargArgGlyCys-LeuProGlyGluGlyThrThr-PheTrpLeuAspSerS ATACGACTGGGGAGAGCTGCCAAATGAGTTTATTACGTTTTGATTTTGAAGGTT	217 375107
375108		375108
216	${\tt HisGlyAlaAspSerProTyrGluLeuHisValArgArgValAspValLeuProAspAla}$	197
196 375108	GlyArgGluIleMetAlaAsnDheArgAspLeuAlaLeuAlaHisHisArgAlaArgArg	177 375131
176 375132	HisargGluLysProLeuTrpGlyValGlnPheHisProGluSerIleGlySerAspPhe	157 375191
156 375192	LeuProAspGluLeuGluProLeuAlaTrpSerAspAspGlyValValWetGlyLeuArg :::	137 375251
136 375252	GlyLeuProSerProPheThrAlaValArgTyrHisSerLeuAlaAlaThrAsp 	119 375311
118 375312	ProGluProMetHisGlyArgValSerGluValArgHisThrGlyGluAspValPheArg	99 375371
98 375372	G1yVa1CysLeuG1yHisG1nG1yI1eAlaG1nLeuPheG1yG1yThrVa1G1yLeuAla	79 375431
78 375432	ArgGluargaspPheGlyIleSerargArgAlaIleThrAspSerGlyLeuProValLeu	59 375482
58 375483	AspPheAspAlaIleValValSerProGlyProGlySerProAsp	44 375542
43 375543	ThrGlyGlnProProValValValProAsnAspAlaAspTrpSerArgLeuProValGlu	24 375587

성 음 성

DB QQ DB QQ

0 0 0 0 0 0

Search completed: October 6, 2005, 00:28:12 Job time: 20108.7 secs

Ş D Ş В

S B S

8 8 8 8

유 성 유

8 8 8 B

CCV029881
CCV0296039
CF598037
AW509018
CF703510
CF703510
AL413391
BZ412593
BZ412593
BZ412593
BZ412593
BZ412593
BZ412593
BZ412593
BZ412593
BZ412593
BZ412707015
BI412707015
BI41270705
BI412

Arabidops
Arabidops
Hm7_0152.
Zea mays

PAMU USDA ESTBOG993 NCEST3006 Si39b01.y CCAPB09TO CCACN30TO CCACN30TO T7 end of OGAAG11TM OGAAG11TM OGAGD95TC OGAGD95TC OMBEJK12TP PUIIR58TD PUIIR58TD PUIIR58TD Mdfrt3089 Sm_ck3199 Sah76e01.

```
Minimum |
Maximum |
                                                                                                        Regult
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                         -MODEL=frame+ par.model -DEV=x1h
-MODEL=frame+ par.model -DEV=x1h
-Q=/cgn2_1/USFTO_spool_h/US10089514/runat_04102005_105744_8043/app_query.fasta_1.1621
-DB=EST -QFMT=fastap -SUFFIX=rst -MINARCH=0.1 -LOOPEXI=0
-UNITS=bits -START=1 -ENDE-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT=pco -NORM=ext -HEAPSIZE=500 -MINLEN-0 -NAXLEN-200000000
-USER=US10089514_8CGN_1_1_6050_@runat_04102005_105744_8043 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEGUERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Searched:
                                                                                                                                                                                                                                                                                          Database
                                                                                                                                                                                                                                                                                                                                                                                                               Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein -
                                   00000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          on:
                                                                                                                                                                              Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
80
     585
576
566
562
561
561
553
547.5
                                                                                                       Score
                                                                                                                                                        re greater than is derived by a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of hits satisfying
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                       Match
                                                                                                                 Query
                                                                                                                                                       is the number of results predicted by chance to have a ster than or equal to the score of the result being printed, rived by analysis of the total score distribution.
                                                                                                                                                                                                 BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-2
3573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34239544 seqs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         October
     16.4
16.1
15.9
15.8
15.7
15.7
15.7
15.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MRTLLIDNYDSFTHNLFQYI....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Copyright
                                                                                                                                                                                              gb_est4: *
gb_est5: *
gb_est6: *
gb_gss1: *
gb_gss2: *
                                                                                                                                                                                                                                                         gb_est2:*
gb_htc:*
                                                                                                                                                                                                                                               gb_est3:*
                                                                                                                                                                                                                                                                              gb_est1:*
                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2005, 09:03:04; Search time 7504.63 Seconds (without alignments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd
                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19032134700 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         chosen
             BQ625203
CO024641
BE658136
CO980064
CO930342
CO034510
CG942457
CA003778
                                                                                                        ij
                                                                                                                                     SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .....VVKARAMVTALDGSAVAGAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (without alignments)
3479.464 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          68479088
             BQ625203
CC0024641
BE658136
CC0980064
CC030342
CC0034510
CG942457
CA003778
                                                                                                      Description
    3 USDA-FP 0
1 EST803025
6 GM700005A
6 GST80307A1
2 EST808726
0 EST812894
7 MBEHO90TF
8 HS15114r
1 EST300692
                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                 RESULT 1
BQ625203
LOCUS
DEFINITION
                                                                                                                                                                                                                                                          VERSION
KEYWORDS
                                                    FEATURES
                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0 0 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ი
                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                    433.5
419
419
415
415
414
414
399
392.5
389.5
389.5
389.5
389.5
389.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      468.5
450.5
450.5
446.5
443
437.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541.5
535.5
525.5
511
500
483
483
483
483
                                                                                                                                                                                                                                                                             BQ625203

USDA-FP_02294 Ridge Fsinensis CDNA clone UBQ625203
                                                                                                                                   sinensis L. Osbeck) seedling
Unpublished (2003)
Contact: Michael Bausher
                                                                                                                                                                                                                                     Citrus sinensis
                                                                                                                                                                                                     Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core en rosids; eurosids II; Sapindales; Rutaceae; Citrus.
                                                                       Fax: (772) 462-5961
Email: mbausher@ushrl.ars.usda
                                                                                            2001 South Rock Rd., Fort Pierce, Tel: (772) 462-5918
                                                                                                                          US Horticultural Research
                                                                                                                                                                 Expressed sequence tags isolated from entire sweet orange (C
                                                                                                                                                                           Hunter, W. and Niedz, R
                                                                                                                                                                                 1 (bases 1 to 698)
Bausher, M., McKendree, W., Dang, P., Chaparro, J.,
                                                                                                                                                                                                                                                           BQ625203.1
EST.
                                                                                                                                                                                                                                                  Citrus sinensis
                                                              primer: T3 Primer
                                                                                                                                                                                                                                                                                                                                                                                           ARS
/organism="Citrus sinensis"
/mol_type="mRNA"
/cultivar="Ridge Pineapple"
/db_xref="taxon:2711"
                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                     GI:21652372
                                                                                                                                                                                                                                                                                                                                                                                  9007
10007
5233
6311
6311
737
716
6410
716
716
716
653
11954
653
11954
653
11954
653
11954
653
11954
653
11954
653
11954
653
11954
653
11954
653
11954
653
11954
653
11954
653
                                            698
                                                                                                                                                                                                                                                                                      pineapple sweet orange USDA-FP_02294 5', mRNA
                                                                                                                                                                                                                                                                                                                                                                                  CF678009
AG258434
CA095675
CC144065
CN926353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CNS06SL5
BZ412600
BZ412593
BZ537360
CG971361
CG170785
CV128706
                                                                                                                                                                                                                                                                                                                                                                                                                                  BZ548859
CG919310
CF703416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BG508630
AY104124
CG947605
BE823672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CNSOA8YM
CNSOA7YD
BZ892725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BI427109
CF718138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CO028609
CF598037
AW509018
CF703510
CF704316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CNS0A1AN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BZ557654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CF863831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AY105009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CD407015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CV099881
                                                                                                                                                                                                                                                                                                                                                   ALIGNMENTS
                                                                                                                                                                                                                                                                                                            698 bp
```

mRNA

linear EST 01-entire seedling sequence.

MBEAL61TR
CCAGD73TF
CCAHM30TF
CCAHM30TF
Lotus cor
SCCCCL600
NDL.75A11
000430AEP

pacs1-60_ Arabidops

pszsoosxG msh2 1411 sac75d07. Zea mays MBEGN88TF

FL 34945,

Shatters, R.,

a; Tracheophyta; eudicots;

```
RESULT 2
CO024641/c
LOCUS
                      ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                              S
                                                                                                                                                                                                            В
                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
         SOURCE
                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-2 (1-686) x BQ625203 (1-698)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ĕ
                                                                                                                                                                                                                                                                      486
                                                                                                                                                                                                                                                                                                                                426
                                                                                                                                                                                                                                                                                                                                                                                                                   583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                                  623
                                                                                                                                                                                                                                                                                                                                                           603
                                                                                                                                                                                                                                                                                                                                                                                        366
                                                                                                                                                                                                                                                                                                                                                                                                                                                306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      465
                                                                                                                                                      606
ESTRO3025 Coccidioides posadasii spherule cDNA library, 0.5 to 5.3 kb Coccidioides posadasii cDNA clone CIFA227 3' end, mRNA sequence. C0024641 GI:48551893
EST. Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLysGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCTGTGAGCCGGGATCTGTACATGTCCCAAATCTCATGAATGTGGAATCATATGCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ValCysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCATATGCTGCCTGGCTTAGTTTTTCTAAGGAGGATTTATGCATTTGTTGTTCTTCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProTyrGlyAlaLeuLeuGluPhe-----ProGluLeuSerValLeuSerAlaSerPro
                                                                                                                                                                                PheThrGluThrValValLysAlaArgAlaMetValThrAlaLeu 677
                                                                                                                                                                                                                              GlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGlu
                                                                                                                                                                                                                                                                                     PheAlaLeuSerGlyAlaAlaAspLeuSerIleValIleArgThrIleValLeuAlaAsp
||||::: ::: ||||||||||||||||||
                                                                                                                                                                                                                                                                                                                             GAAATTCTTGAGTCTATTGAGAGTTGTTCTCGGGGTATCTACTCTGGCTCAATTGGGTAT
                                                                                                                                                                                                                                                                                                                                            GluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeuGlyTrp
                                                                                                                                                                                                                                                                                                                                                                                        TGTGTCAGAGCAGCATTCCCAGGTGGTTCAATGACTGGTGCACCAAAGTTGAGGTCGATG
                                                                                                                                                                                                                                                                                                                                                                                                         CysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArgThrMet
                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTCACACCATGGTGAGTACAATCTGTGGGAAAAAGCATTCAAATGTTAGTGCAGTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATAGCTCGTGGATCCACACCAGAAGAAGATGAACAGCTCAAATTGCAACTGCAGTATAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGAGGTTTCTACGATTGGATAAGAATGACTTATTAGAAGCAAAAACCCATCAAGGGTACC
                                                                                                                                                     TATGAAGAAATGATTTTGAAATCAAGTGCTCCAGCAAAGGCTGTG
                                                                                                                                                                                                            GGTGAAGCTTCCATAGGAGCAGGAGGAGCTATTGTTGCCTTATCAAATCCTGAAGATGAA
                                                                                                                                                                                                                                                                      TTCTCATATAATCGAACATTTGÁTCTÁAACÁTÁGTCÁTÁÁGÁÁCÁGTTGTCATACATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone="USDA-FP_02294"
/tissue_type="entire seedling"
/dev_stage="50 days after germination"
/lab_nost="XL1-Blue"
/clone lib="Ridge pineapple sweet orange entire seedling"
/note="Vector: pBluescript II SK+; Site_1: EcoRI; Site_2:
XhoI; A high quality EST with at least 200 contiguous
bases at Trace Tuner score of 20 or better"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6.35e-45
585.00
71.63%
54.42%
16.37%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              698
117
37
59
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            542
                                                                                                                                                                                                            605
                                                                                                                                                                                                                                         662
                                                                                                                                                                                                                                                                      545
                                                                                                                                                                                                                                                                                                  642
                                                                                                                                                                                                                                                                                                                                485
                                                                                                                                                                                                                                                                                                                                                                                        425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65
                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                          Ş
                                                                            맑
                                                                                                      Ş
                                                                                                                                      밁
                                                                                                                                                           Ş
                                                                                                                                                                                             문
                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-2 (1-686)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scores:
                                                                                                                                   553
                                                                                                                                                                                                                                                                                                          466
                                                                                                                                                                                                                                                                                                                                                                             447
                                                                                                                                                                                                                                                                                                                                                                                                               793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Coccidioides posadasii

Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;
Onygenales; mitosporic Onygenales; Coccidioides.

1 (bases 1 to 894)
1 (bases 1 to 894)
2 aardner; M.J. and Cole,G.T.
Analysis of gene expression in Coccidioides posadasii mycelia spherules via expressed sequence tags
Unpublished (2003)
Other ESTS: EST803026
Contact: Gardner MJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9712 Medical Center Drive,
Tel: 301 838 3519
Fax: 301 838 0208
TCTCCATCAAAATCAATCAAGGTCCCGAAAACTACTCCACGTTGAAAGCTACGAAACAGTA
                              CysAlaIleGlySerValHisValProArgLeuPheGluValGluThrTyrAlaProVal
                                                               GCCGTCAGCCCAGACAAAGAAGAAGAAGACGAGCGGAGAAAAAGTCAGTTAGCGACGGATGTC
                                                                                                                                                               ProArgGlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGlu
                                                                                                                                                                                                                          ArgPheLeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLysGlyThrArg
                                                                                                                                                                                                                                                                      TACTCAGCGTATATAGACTTCCGTGTCAACGAGACCACCATACTCTTCGTCGTCGCCCAG
                                                                                                                                                                                                                                                                                          TyrGlyAlaLeuLeuGluPhe-----ProGluLeuSerValLeuSerAlaSerProGlu
                                                                                                                                                                                                                                                                                                                                                                           ---ThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSerProValPro
                                                                                                                                                                                                                                                                                                                                                                                                               AATGCCATTAAGGAGGGGGAGGCGTATGAGGTGACAATCACGACAAAATTCAAGGCATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                  LysGluIleArgAsnGlyGluSerTyrGluIleCysLeuThrAsnMetValThrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGTTTATATCCATAGATGCTGATGGCGTGGCTGAAATGAAACCAATAAAGGGAACCCTT
                                                                                                                                                                                                                                                                                                                                             TGTCCGGATGTAGACCCATACGCATTATATCTCTCCCTTCGAGAACGTAACCCCGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Institute for Genomic Research 2 Medical Center Drive, Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gardner@tigr.org.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Vector: pExpress 1; Site 1: Not I; Site 2: Coccidioides posadasii spherule cDNA library, 0.5 kb "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /dev_stage="spherules"
/lab_host="E. coli DH10B,
/clone_lib="Coccidioides
0.5 to 5.3 kb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /strain="C735"
/db_xref="taxon:199306"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              organism="Coccidioides/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                clone="CIFA227"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  x CO024641 (1-894)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6.55e-44
576.00
62.18%
46.18%
16.12%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3, T1 phage
3 posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               posadasii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    894
127
44
100
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          resistant"
spherule c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     £SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cDNA library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ECO 5
                                                                                                 543
                                                                                                                                                                                                                                      503
                                                                                                                                                                                                                                                                                                          483
 374
                                 563
                                                                 434
                                                                                                                                     494
                                                                                                                                                                    523
                                                                                                                                                                                                        554
                                                                                                                                                                                                                                                                          614
                                                                                                                                                                                                                                                                                                                                             674
                                                                                                                                                                                                                                                                                                                                                                               465
                                                                                                                                                                                                                                                                                                                                                                                                                                                446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  794
                                                                                                                                                                                                                                                                                                                                                                                                               734
```

ů

```
RESULT 3
BE658136/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73
                                                                                                                                                                                                                                                                                                                Genomics
University of Illinois
Edwin R. Madigan Buildi
Tel: (217) 244-6147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Other_ESTs: AI940862 corresponding to Gm-c1010-1280 (5') Contact: Vodkin, L.O., PI, A Functional Genomics Program Soybean (NSF 9872565)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vodkin, L., Keim, P., Shoemaker, R., Retzel, E., Khanna, A., Erpelding, J., Raph, C., Shoop, E., Pardinas, J., Liu, L. an A. Functional Genomics Program for Soybean (NSF 9872565)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; cosids; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Glycine max (soybean)
Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BE658136.1 GI:9984028
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BE658136
GM700005A10A7 Gm-r1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lewin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLy8Ly8ArgThrMetGlu 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGlu 662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTATGCGCCAGCGGCACCGTCGATCAGTCGGTGGTTATCCGTACGATTGTAAAGTACGGA 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PheThrGluThrValValLysAlaArgAlaMetValThrAlaLeu 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PheAlaLeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIleValLeuAlaAsp 642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCGAGCGATGCTTCCCACCAGGATCCATGACGGGCGCTCCCAAACTCAGAGCCGTGCAA 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATCAGCTCGTCACAACCATTCAATCCCACATCGCCCCAACGTCGGCGGCGTCCAGGTT 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisGinLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAlaCys 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGGATGAGGTCATGGTGAAGGCGAATGCTGTTGCTACGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCCTCGACGGCCTGGAAGAGCACCGCGAGCGCGCATATACTCCGGCAGTCTGGGCTAT 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 859)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (217) 244-6147
(217) 333-4582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H. A., Director,
/mol_type="mRNA"
/db_xref="taxon:3847"
/db_xref="taxon:3847"
/clone="mr:1070.1549"
/clone="fib="Gm-r1070"
/clone="
                                                                                                                                                                                                                                                                      organism="Glycine max"
                                                                                                                                                                                                                                                                                                    . .859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Building,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Glycine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Keck Center for Comparative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gd 658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1201 W. Gregory, Urbana, IL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear EST 24-MAY-2001 clone Gm-r1070-1549 3',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and Functional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61801, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Coryell, V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lewin, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
Pred. No.:
Score:
Score:
Percent Similarity
Best Local Similar
Query Match:
DB:
                                            9
                                                                                                     멅
                                                                                                                                   9
                                                                                                                                                                                              멅
                                                                                                                                                                                                                                      Ô
                                                                                                                                                                                                                                                                                             멅
                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                      멅
                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ğ
         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멅
         197 ACAAGGCTGTG 186
```

a representative of each contig, which were reracked to form library Gm-r1070. The cDNA clones of the reracked Gm-r1070 library were then sequenced at the 3' end. The contig analysis to select unique genes was performed by the laboratory of Ernest Retzel, Center for Computational Genomics and Bioinformatics, University of Minnesota, http://www.cbc.unn.edu/ResearchProjects/Soybean/index.html. Reracking was performed by Genome Systems, St. Louis, http://www.genomesystems.com, and 3' sequencing by the Keck Center for Comparative and Functional Genomics, University of Illinois, http://www.life.uiuc.edu/biotech/keck.html. Note: The corresponding 5' EST from each clone in the Gm-r1070 library is listed in the 'OTHER EST' field. The detailed information on the source library for each clone can also be obtained by referring to the Genome Systems clone ID of the original CDNA library that is also listed under 'OTHER EST'."

red. No.: red. No.: core: core: ercent Similarit est Local Simila hery Match:	red. No.: 4.42e-43 Length: 859 kcore: 567.00 Matches: 113 kercent Similarity: 72.55\$ Conservative: 35 best Local Similarity: 55.39\$ Mismatches: 56 uery Match: 15.87\$ Indels: 0 B: Gaps: 0
/S-10-089-	089-514-2 (1-686) x BE658136 (1-859)
	74 GluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGly :::
ਰੱ	797 GATCTGAGTANNNGCTNNNNNNNNNNNNNNNGAGAGGTTCCTGCAGTTGGATAGGAAGAATATA 738
¥	494 ValGluSerLysProlleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGlu 513
ਰੱ ਹ	737 CTAGAAGCTAAGCCCATCAAGGGAACGATAGCTCGTGGTGCTACTGAAGAGGAAGATGAG 678
¥	514 ArgheuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleVal 533
ŭ	677 CAACTAAAATTTAAATTACAGTTCAGCGAAAAGGATCAGGCTGAAAAACCTGATGATTGTT 618
Ÿ	534 AspLeuValArgAsnAspLeuAsnSerValĊysAlaIleGlySerValHisValProArg 553
ŏ	617 GACCTTCTAAGGAATGACCTTGGCCGTGTTTGTGATCCTGGATCTGTTCATGTGCCACGT 558
Ÿ	554 LeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArg 573
ŏ	557 CTCATGGATGTGGAATCATATGCAACTGTTÇACACAATGGTGAGTACTATTCGTGGGAAG 498
Ÿ	574 LeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMet 593
ŏ	497 AAGCGGTCAGATGTCAGTGCTGTAGACTGTGTCAAAGCTGCATTTCCTGGTGGTTCAATG 438
Ÿ	594 ThrGlyAlaProLysLysArgThrMetGluİleIleAspArgLeuGluGluGlyProArg 613
ŏ	437 ACAGGTGCANNTAAGTTGAGATCAATGGAACTTCTTGATTCTATTGAAAGTTGTTCTCGA 378
¥	614 GlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIle 633
ŏ	377 GGTATCTACTCAGGCTGTATTGGATTTTTCTCATATAATCAAGCATTTGATCTAAATATT 318
ž	634 ValīleArgThrīleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaīle 653
ਲੋ	317 GTGATAAGAACAGTCATTGTACACGAGGGTGAAGCTTCAATAGGAGCTGGAGGGGCAATT 258
Ÿ	654 ValSerLeuSerAspGlnGluGluGluPheThrGluThrValValLysAlaArgAlaMet 673
ਰੋ	257 GTTGCTCTGTCAAACCCTGAAGACGAGTATGAAGAGATGGTTTTGAAGACAAAAGCCCCA 198
ऱ	674 ValThrAlaLeu 677

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CO980064/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vodkin, L., Shoemaker, R., Keim, P., Polacco, J.C., Retzel, E., Khanna, A., Shealy, R., Clough, S., Thibaud-Nissen, F., Coryell, V., Khanna, J., Shealy, R., Clough, S., Thibaud-Nissen, F., Coryell, V., Erpelding, J., Gonzalez, D.O., Stromvik, M., Rodriguez-Huete, A.M., Schweitzer, P., Gong, G. and Liu, L. Schweitzer, P., Gong, G. and Liu, L. A. Functional Genomics Program for Soybean (NSF 9872565) (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CO980064
CO980064.1 GI:51336198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: 1-vodkin@uiuc.edu
Plate: GM89007A1 row: C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Edwin R. Madigan Building, 1201
Tel: (217) 244-6147
Fax: (217) 333-4582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        University of Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Vodkin, L.O., PI, A Functional Genomics Soybean (NSF 9872565)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Other_ESTs: BE347129 corresponding to Gm-c1043-239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GM89007A1C03.r1 Gm-r1089 Glycine max cDNA clone Gm-r1089-2405 3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lewin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 768)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 primer: 5'-TTTTTTTTTTTTTTTTTTTT(A/C/G)-3'
h quality sequence stop: 768.
                                                                                                                                                                                                                                                                            /clone="IGm-r1089-2405"
/clone="IGm-r1089"
/clone="Ib-"gm-r1089"
/clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       H. A., Director, Keck Center for Comparative and Functional
                                                                                                                                                     (http://sobbeangenomics.cropsci.uiuc.edu/) as part of creation of a low redundancy soybean cDNA set. The source cDNA libraries were constructed by the laboratories of
Lila Vodkin, University of Illinois, Randy Shoemaker, Iowa State University, and Paul Keim, Northern Anizona University as part of the Public EST project, http://l29.186.26.94/soybeanest.html. The contig analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /moi_type="mRNA"
/db_xref="taxon:3847"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Glycine max"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               768 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       W. Gregory, Urbana,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Program
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (5')
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IL 61801,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST 13-SEP-2004
```

sequencing were conducted by services of the University of Illinois Keck Center for Comparative and Functional Genomics http://www.botcech.uiuc.edu/keck.htm. Note: The corresponding 5' EST from each clone in the Gm-r1089 library is listed in the 'OTHER EST' field. The detailed information on the source library for each clone can also be obtained by referring to the clone ID of the original cDNA library that is also listed under 'OTHER EST'." to select unique genes was performed by the laboratory Ernest Retzel, Center for Computational Genomics and Bioinformatics, University of Minnesota, http://web.ahc.umn.edu/biodata/nsfsoy/. Reracking and 3 of.

RESULT 5 CO030342/c Ś 밁 δ 멍 Ś 맑 Ş 밁 Ş В Ş 밁 Ş 밁 Š 문 Ş Ş 밁 밁 US-10-089-514-2 (1-686) x CO980064 (1-768) Query Match: Percent Similarity: Score: Pred. Alignment Scores: No. 325 385 505 514 ArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleVal 654 ValSerLeuSerAspGlnGluGluGluPheThrGluThrValValLysAlaArgAlaMet 673 594 445 AAGCGGTCAGATGTCAGTGCTGTAGACTGTGTCAAAGCTGCATTTCCTGGTGGTTCAATG 574 LeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMet 554 534 AspLeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArg 494 ValGluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGlu 745 GATCTGAGTATTTGCTGTTCTTNNNNTGAGAGGTTCCTGCAGNNNGATAGGAAGAATATA 686 474 GluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGly 493 Similarity: VallleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIle ValThrAlaLeu 677 LeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArg GTTGCTCTGTCAAACCCTGAAGACGAGTATGAAGAGAGGTTTTGAAGACAAAAAGCCCCCA 146 GTGATAAGAACAGTCATTGTACACGAGGGTGAAGCTTCAATAGGAGCTGGAGGGGCAATT GGTATCTACTCAGGCTGTATTGGATTTTTCTCATATAATCAAGCATTTGATCTAAATATT GlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIle ThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArg CTCATGGATGTGGAATCATATGCAACTGTTCACACAATGGTGAGTACTATTCGTGGGAAG GACCTTCTAAGGAATGACCTTGGCCGTGTTTTTGATCCTGGATCTGTTCATGTGCCACGT CAACTAAAATTTAAATTACAGTTCAGCGAAAAGGATCAGGCTGAAAACCTGATGATTGTT CTAGAAGCTAAGCCCATCAAGGGAACGATAGCTCGTGGTGCTACTGAAGAGGAAGATGAG 4.66e-43 566.00 73.04% 55.39% 15.84% Mismatches: Indels: Matches: Conservative: Gaps: 768 113 36 55 653 326 593 533 626 513 206 266 633 613 386 446 573 506 553 566

DEFINITION TOCUS

CO030342
818 bp mRNA linear EST 10-JUN-200
EST808726 Coccidioides posadasii spherule cDNA library, 0.5 to 5.3
kb Coccidioides posadasii cDNA clone CIFB368 3' end, mRNA sequence

EST 10-JUN-2004 ary, 0.5 to 5.3

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                        á
   밁
                            8
                                                           유
                                                                                   S
                                                                                                                    밁
                                                                                                                                               ঠ
                                                                                                                                                                                밁
                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-089-514-2 (1-686) x CO030342 (1-818)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                       574
 454
                             537
                                                           514
                                                                                        517
                                                                                                                                                  497
                                                                                                                                                                                634
                                                                                                                                                                                                              477
                                                                                                                                                                                                                                            694
                                                                                                                                                                                                                                                                                                       754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Coccidioides posadasii
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;
Onygenales; mitosporic Onygenales; Coccidioides.

1 (bases 1 to 818)
Gardner, M.J. and Cole, G.T.
Analysis of gene expression in Coccidioides posadasii mycelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 spherules via expressed sequence tags
Unpublished (2003)
Other EST8: EST808727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9712 Medical Center Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Contact: Gardner MJ
The Institute for Genomic Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C0030342
C0030342.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                             AlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuVal
                                                                                                                                       LysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArgLeuArg
                                                                                                                                                                                                    ValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGluSer 496
                                                                                                                                                                                                                                                                   ArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPhe-----ProGluLeuSer 476
                                                                                                                                                                                                                                                                                                                                                                CAGAAGATCCGGGCCGCACAGAATGCCATTAAGGAGGCGAGGCGTATGAGGTGACAATC
                 ArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGlu
                                                                                                                      AAACCAATAAAGGGAACCCTTGCCGTCAGCCCAGACAAGAAGAAGAAGACGAGCGGAGAAAA
                                                                                                                                                                              ATACTCTCTTCGTCGCCCGAGAGGTTTATATCCATAGATGCTGATGGCGTGGCTGAAATG
                                                                                                                                                                                                                                          CGAGAACGTAACCCCGCCCTTACTCAGCGTATATAGACTTCCGTGTCAACGAGACCACC
                                                                                                                                                                                                                                                                                                      ACGACAAAATTCAAGGCATCGTGTCCGGATGTAGACCCATACGCATTATATCTCTCCCTT
                                                                                                                                                                                                                                                                                                                                  ThrAsnMetValThrAlaPro---ThrGluAlaThrAlaLeuProLeuTyrSerAlaLeu
AGTCAGTTAGCGACGGATGTCAAGGAGCTCGCCGAGAACTTAATGATTGTCGATCTTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301 838 3519
301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gardner@tigr.org.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="Vector: pExpress 1; Site 1: Not I; Site 2: Coccidioides posadasii spherule cDNA library, 0.5 kb "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /dev stage="spheriles"
/lab_host="E. coli DH10B, Tl phage
/clone lib="Coccidioides posadasii
0.5 to 5.3 kb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="taxon:199306"
/clone="CIFB368"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="C735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Coccidioides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.23e-42
562.00
62.98%
46.95%
15.73%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:48563318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                posadasii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3
                                                                                                                                                                                                                                                                                                                                                                                                                                                        818
123
42
93
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          resistant"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          spherule
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cDNA library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mycelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               to 5.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ECO RV
                                                                                                                    515
                                                                                                                                                  516
                                                                                                                                                                                575
                                                                                                                                                                                                                                                                                                                                  458
                             556
                                                                                                                                                                                                                                          635
```

```
RESULT 6
CO034510/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                  JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
ORIGIN
                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     υ
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94
                                                                                                                                                                                                                                                                                                                                                                Unpublished (2003)
Other_ESTs: EST812895
                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 820)
Gardner,M.J. and Cole,G.T.
Analysis of gene expression in Coccidioides
spherules via expressed sequence tags
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CO034510 820 bp mRNA linear EST
EST812894 Coccidioides posadasii spherule cDNA library,
kb Coccidioides posadasii cDNA clone CIFBU13 3' end, mRN
                                                                                                                                                                                                                                                                                                            The Institute for Genomic 9712 Medical Center Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eu
Onygenales; mitosporic Onygenales; Coccidioides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CO034510
                                                                                                                                                                                                                                         Email: gardner@tigr.org.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                Contact: Gardner MJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CO034510.1 GI:48571664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ececie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCAGCGAGGAGAAAGAATGGGATGAGGTCATGGTGAAGGCGAATGCTGTTGCTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuSerAspGlnGluGluGluPheThrGluThrValValLysAlaArgAlaMetValThr 675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSer 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIle 635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProLysLysArgThrMetGluIleIleAspArgLeuGluGlu---GlyProArgGlyVal 615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TACTCCGGCAGTCTGGGCTATGTATGCGCCAGCGGCACCGTCGATCAGTCGGTGGTTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCAAACTCAGAGCCGTGCAAATCCTCGACGGCCTGGAAGAGCACCGCGAGCGCGAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACGTCGGCGGCGTCCAGGTTCTCGAGCGATGCTTCCCACCAGGATCCATGACGGGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAla 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTGAAAGCTACGAAACAGTACATCAGCTCGTCACAACCATTCAATCCCACATCGCCCCC
                                                                                                                                                                                                                                                                           301 838 3519
301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    677
                 /note="Vector: pExpress 1; Site 1: Not I; Site 2: Eco RV.
Coccidioides posadasii spherule cDNA library, 0.5 to 5.3
kb "
                                                                                                                                                                     /organism="Coccidioides
/mol_type="mRNA"
/strain="C735"
                                                                /dev stage="spherules"
/lab_host="E. coli DH10B,
/clone_lib="Coccidioides p
).5 to 5.3 kb"
                                                                                                                                     /db_xref="taxon:199306"
/clone="CIFBU13"
                                                                                                                                                                                                                                                                                                             Research
, Rockville,
                                                                                                                                                                                                         posadasii"
                                                                                , T1 phage resistant"
posadasii spherule cDNA library,
                                                                                                                                                                                                                                                                                                               ₹
                                                                                                                                                                                                                                                                                                             20850,
                                                                                                                                                                                                                                                                                                                                                                                                                  posadasii mycelia and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eurotiomycetes;
                                                                                                                                                                                                                                                                                                               USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST 10-JUN-2004
ary, 0.5 to 5.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        35
```

Percent Similarity: Best Local Similarity:

1.53e-42 561.00 64.03% 48.22%

Length:
Matches:
Conservative:
Mismatches:

820 122 40 87

Score:

Alignment

Scores:

NO.

```
RESULT 7
CG942457
LOCUS
 REFERENCE
AUTHORS
                                                                                                                        ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query
DB:
                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                             KEYWORDS
                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-2 (1-686)
                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match
                   Burvey sequence.

G942457

G942457.1 GI:39847070

GSS.

Medicago truncatula (barrel medic)

Medicago truncatula

Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Wagnoliophyta; eudicotyledons; core eudicots;

Spermatophyta; Papales; Fabaceae; Papilionoideae; Trifolieae;
                                                                                                                                                                                                                                                             665
                                                                                                                                                                                                                                                                                         127
                                                                                                                                                                                                                                                                                                                                              187
                                                                                                                                                                                                                                                                                                                                                                                                  247
                                                                                                                                                                                                                                                                                                                                                                                                                             909
                                                                                                                                                                                                                                                                                                                                                                                                                                                        307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         727
                                                                                                                                                                                                                                     67
                                                                                                                                                               MBEHO90TF mth2 Medicago
  Town,
                                                                                                                                                                               CG942457
                                                                                                                                                                                                                                                  GluThrValValLysAlaArgAlaMetValThrAlaLeu 677
                                                                                                                                                                                                                                                                                                          AlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPheThr
                                                                                                                                                                                                                                                                                                                                                          LeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIleValLeuAlaAspGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                AspArgLeuGluGlu---GlyProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgAlaGluAsnLeuMetIleValAspLeuValArgAsnAspLeuAsnSerValCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyGlyThrAlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuThrIleGlyAlaAspGlyGlyValGluSerLysProIleLysGlyThrArgProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaLeuLeuGluPhe-----ProGluLeuSerValLeuSerAlaSerProGluArgPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCAGCGGCACCGTCGATCAGTCGGTGGTTATCCGTACGATTGTAAAGTACGGAAAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                  CGATGCTTCCCACCAGGATCCATGACGGGCGCTCCCAAACTCAGAGCCGTGCAAATCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAlaCysValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCAAAATCAAGGTCCCGAAACTACTCCACGTTGAAAGCTACGAAACAGTACATCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCGCCGAGAACTTAATGATTGTCGATCTTATCCGCGCCGACCTCCACAACATTTCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCCCAGACAAAGAAGAAGAACGAGCGGAGAAAAAGTCAGTTAGCGACGGATGTCAAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGTATATAGACCTCCGTGTCAACGAGACCACCATACTCTCTCGTCGCCCGAGAGGGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGTAGACCCATACGCATTATATCTCTCCCTTCGAGAACGTAACCCCGCCCCTTACTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSerProValProTyrGly
(bases 1 wn, C.D., S
                                                                                                                                                                                                                                  GAGGTCATGGTGAAGGCGAATGCTGTTGCTACGGCGCTG
                                                                                                                                                                                                                                                                                        CTCGTCACAACCATTCAATCCCACATCGCCCCCAACGTCGGCGCGCGTCCAGGTTCTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATATCCATAGATGCTGATGGCGTGGCTGAAATGAAACCAATAAAGGGAACCCTTGCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTAAGGAGGGCGAGGCGTATGAGGTGACAATCACGACAAAATTCAAGGCATCGTGTCCG
Shetty, J.,
              to 893)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CO034510
 K00, H.
                                                                                                                                                              893 bp
truncatula
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1-820)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels:
Gaps:
 and
 Feldblyum, T.F
                                                                                                                                                              DNA
genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             u,a
                                                                                                                                                               linear
clone 5
                                                                                                                                                               r GSS
57P11,
                                                                                                                                                              15-DEC-2003
genomic
                                                                                                                                                                                                                                                                                                                                            128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    467
                                                                                                                                                                                                                                                                                        89
                                                                                                                                                                                                                                                                                                                                                                       644
                                                                                                                                                                                                                                                                                                                                                                                                  188
                                                                                                                                                                                                                                                                                                                                                                                                                            624
                                                                                                                                                                                                                                                                                                                                                                                                                                                     248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
                               δ
                                                                                         S
                                                                                                                                          S
                                                                                                                                                                           밁
                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                    망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
              밁
                                                                 밁
                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                        414
                                                                                                                                                515
                                                                                                                                                                                                                                                                                                                                            174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scores:
                                                                                                                                                                            354
                                                                                                                                                                                                       495
                                                                                                                                                                                                                                  294
                                                                                                                                                                                                                                                                                        234
                                                                                                                                                                                                                                                                                                                 457
                                                                                                                                                                                                                                                                                                                                                                      438
                                                                                                                                                                                                                                                                                                                                                                                                 114
                                                                                                                                                                                                                                                                                                                                                                                                                            418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      378 ThrLeuThrGlyLeuAlaValArgAlaProAlaGluProThrProAlaMetValPheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                     66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequencing of BAC ends
Unpublished (2003)
Other GSSs: MBEHO90TR
Contact: Chris Town
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: cdtown@tigr.org
Seq primer: TGTAAAACGACGGCCAGT
Class: BAC ends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fax: 301-838-0208
                                                                                                                                                                                          GluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGluAspGluArg
            CGAACTGTCTCGTTTTTCTTTTCAGTGAAAAGGATCAGGCAGAAAACCTGATGATTGTT
                                                                  TAACTTACTACATTTTTTGTCATGACATCAAATTTCCAAGCAACTGATTGAAATCTGTTG
                                                                                                                                                LeuArgAlaAspLeuAlaGlyArg----
                                                                                                                                                                            CTGTGTATTTGCTGTTCTTCCCCCGAGAGGTTCCTGCAGTTGGATAGGAGTGATATGCTA
                                                                                                                                                                                                                                                          LeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyVal
                                                                                                                                                                                                                                                                                        CATTTGAGAGAAAGGAATCCAGCACCTTATGCGGCTTGGCTGAATTTTTCCAAAGGAAGAT
                                                                                                                                                                                                                                                                                                         AlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPhePro-----Glu
                                                                                                                                                                                                                                                                                                                                           TGCCTCACAACCCAGATAAGGAAACCGGTTGAGGTATTAAATTCTCTTTGGACTTTACCTA
                                                                                                                                                                                                                                                                                                                                                                      CysLeuThrAsnMetValThrAlaProThrGluAla---ThrAlaLeuProLeuTyrSer
                                                                                                                                                                                                                                                                                                                                                                                               TACATTAGAGATGTTAAGAAGTGTCTAAACTACATTAGAGATGGAGAGAGCTATGAGTTG
                                                                                                                                                                                                                                                                                                                                                                                                               TyrLeuLysArgIleAspGluCysLeuLysGluIleArgAsnGlyGluSerTyrGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IleProGluAlaAlaAlaGlyPheGlyProLeuAlaArgAlaArgHisAspLysAspAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCTTAACTGGT---TCTGTGAGGATGGATTTAGAAAGGCAGCACTCTCATCCTTCAACT
                                                                                                                      CTCAAATTGAAATTACAGCTCAGGTTTTTCTATGACTTCAATTTACATATTGGAATTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTTCCTCACATAAGGCTGGTTTCGCA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-686)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Medical Center Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301-838-3523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Medicago trunc;
/mol type="genomic DNA"
/cultivar="genotype A17"
/db xref="taxon:3880"
/clone="57P11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone_lib="mth2"
/note="Vector: pBeloBAC11; Site_1: HindIII; Site_2:
HindIII; Cook, D.R. and Kim, D.J, unpublished"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        j. .893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.65e-42
556.50
56.00%
43.33%
15.58%
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CG942457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1-893)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Medicago
                          -GluLysAspArgAlaGluAsnLeuMetIleVal 533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          truncatula
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTGAAAAATCTAAAGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130
130
38
83
50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20850, USA.
```

293 474 233 456 173 437 113 417 65 397

593

533

473 522 413 514 353

δ

밁 á 문 र्ठ 밁 S 밁 Ś 밁

```
RESULT 8
CA003778
LOCUS
   Alignment Scores: Pred. No.:
                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         834
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hordeum vulgare subsp. vulgare
Hordeum vulgare subsp. vulgare
Hordeum vulgare subsp. vulgare
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Pooideae; Triticeae; Hordeum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Corrensstr. 3, 00
Tel: 039482-5522
Fax: 039482-5595
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: stein@ipk-gatersleben.de
Insert Length: 529 Std Error:
Plate: 15 row: I column: 14
Seq primer: M13rev.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Molecular Markers Group, Department Genbank
Institute of Plant Genetics and Crop Plant Research
Corrensstr. 3, 06466, Gatersleben, Germany
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Barley ESTs from germinating seeds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CA003778
CA003778.1 GI:24280760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CA003778 529 bp
HS15I14r HS Hordeum vulgare subsp.
5-PRIME, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Stein Nils
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zhang, H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGAGGTCAGATATAAGTGCTGTAGACTGTGTCAAAGCTGCATTTCCCCGGTGGTTCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCATCTACTCAGGCTGCATTGGATT-TTCTCATATAATCAAACATTTGATCTAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIle 633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMet 593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArg 573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArg 613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCTTCTAAGAAATGACCTTGGTCGTGTATGTGATCCTGGATCTGTTGACGTACCGCAT 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspLeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 529)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ., Potokina,E., Michalek,W., Weschke,W.,
                                                                /note="Vector: pBluescript SK+; Site 1: EcoRI (5'-end of CDNA); Site 2: XhoI (3'-end of cDNA); Due to a cloning artefact caused by the kit, in most cases the EcoRI site is NOT present, as well as the EcoRIadapter used for cloning. To excise the insert, restriction sites upstream EcoRI should be used (e.g. BamHI, SalI,PStI). NOTE: Also due to the cloning system used Blue/white selection for recombinats is not 100% reliable."
                                                                                                                                                                                                                                     /tissue_type="embryo + scutellum"
/dev_stage="0-16 hours after imbibition"
/lab_host="XL10-Gold"
                                                                                                                                                                                                                                                                                                                              /cultivar="barke"
/sub_species="vulgare"
/db_xref="GABI:258990"
                                                                                                                                                                                                                          /clone
                                                                                                                                                                                                                                                                                                                                                                                     organism="Hordeum vulgare subsp./mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                clone="HS15I14"
                                                                                                                                                                                                                                                                                                               /db_xref="taxon:112509"
                                                                                                                                                                                                                      lib="HS"
Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
vulgare
 525
                                                                                                                                                                                                                                                                                                                                                                                                      vulgare"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear Ex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Stein, N. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (IPK)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST 23-OCT-2002
1e HS15I14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    773
                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 9
AW223881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                    FEATURES
                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-089-514-2 (1-686) x CA003778
                                                                                                                                                               TITLE
JOURNAL
                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              556 GluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    536 ValArgAsnAspLeuAsnSerValCysAlaileGlySerValHisValProArgLeuPhe 555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   496 SerLysProIleLysClyThrArgProArg6lyGlyThrAlaGluGluAspGluArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65
                                                                                                                                        Lycopersicon esculentum (tomato)
Lycopersicon esculentum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
asterids; lamiids; Solanales; Solanaceae; Solanum; Lycopersicon.
1 (bases 1 to 620)
Alcala, J., Vrebalov, J., White, R., Matern, A.L., Holt, I.E., Liang, F.,
Upton, J., Hansen, T., Craven, M.B., Bowman, C.L., Ahn, S.,
Ronning, C.M., Fraser, C.M., Martin, G.B., Tanksley, S.D. and
Giovannoni, J.
Generation of ESTs from tomato fruit tissue
Unpublished (1999)
Contact: CUGI
                                                                    100 Jordan Hall, Clemson, Email: http://www.genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                       EST300692 tomato clone cLEN13P22,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                տ
                                                                                                        Clemson University
                                                                                                                         Clemson University Genomics Institute
                                                                                                                                                                                                                                                                                                                                                                                                      AW223881.1 GI:6535565
                                                     prime
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGTCAGACCCGGAGGCGGAGTACGCCGAGATGATGCTCAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuSerAspGlnGluGluPheThrGluThrValValLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TACTCGGGGTCGATCGGGTTCTTCTCGTACAACCGCACGTTCGATCTGAACATCGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGACGGTAGTGCTGCACGACGGNGTGGCCTCGGTCGGAGCAGGCGGGGGGGGATTGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGATCTAAGCCCGGTAGACTGCATCAAAGCCGCCTTTCCAGGAGGCTCGATGACGGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACGTTGAATCATATAAATCTGTTCACACCATGGTGAGCACCATCCGCGGAACAAAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTAAGAAATGATCTGGGTAAGGTCTGCGAGCCTGGGAGCGTGCATGTTCCTCGCCTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGAGGCCAATCAAAGGTACAATAGCACGTGGCAGAACACCAGAGGAAGATGAGTGTCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTTTGCAACTGAAATACAGTGAAAAGGACCAGGCTGAGAACTTGATGATTGTTGATCTC
                                                     sequence
                                  Location/Qualifiers
organism="Lycopersicon esculentum'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            553.00
76.00%
62.29%
15.48%
                                                                                                                                                                                                                                                                                                                                                                                                                             620 bp of fruit red ripe, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (1-529)
                                                                      .clemson.edu/orders/index.html
                                                                                         SC 29634,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TAMU Lycopersicon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          109
24
42
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     529
                                                                                                                                                                                                                                                                                                                                                                                                                                                           esculentum cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST 18-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    515
```

```
Best Local
Query Match
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-2 (1-686) x AW223881 (1-620)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
0
::
                                     616
                                                                          543
                                                                                                             596
                                                                                                                                                                                                                                                                                                    363
                                                                                                                                                                                                                                                                                                                                       536
                                                                                                                                                                                                                                                                                                                                                                              303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scores:
 603
                                                                                                                                                  483
                                                                                                                                                                                                                            423
                                                                                                                                                                                                                                                                                                                                                                                                                                                      243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuLysArgIleAspGluCysLeuLysGluIleArgAsmGlyGluSerTyrGluIleCys
                                                                                                                                              GluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArg
                                                                                                                                                                                                                                                                                                                           ValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                             ArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TACTCGGGCTGCATTGGA
                                   TyrSerGlyAlaLeuGly 621
                                                                      GCACCAAAGTTGAGATCAATGGAACTTCTTGATCATCTTGAAAATTGTTCGAGGGGCATA
                                                                                                   AlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyVal
                                                                                                                                                                                                                                                                                                                                                                              AAACTGCAATTAGAATGCAGTGAAAAGGATCAGGCGGAAAATTTGATGATTGTTGACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCAAAACCCATAAAAGGGACTATAGCTCGTGGTTCCACCCCAAAGGAAGATGAATTTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTACAACTCAGATGAGAATGAAGTTGGGGGGGAATAGATTCTCTGGAACTTTATCGTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuThrAsnMetValThrAlaProThrGluAla---ThrAlaLeuProLeuTyrSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCAAAGACGTTGAGAATTGTCAAGAGTTCATAAAAGAAGGAGAAGTTATGAGTTGTGT
                                                                                                                                                                                                                          GAAATTGAATCCTATGCAACAGTTCATACCATGGTCAGTACGATTCGGGGGAAAAAGCGA
                                                                                                                                                                                                                                                                                                  TTGAGGAATGACCTTGGGCGTGTATGTGAGACTGGCTCTGTTCATGTCCCACATCTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCATATGTTGTTCATCACCTGAAAGGTTCCTACGATTGGACAGGAATGCTATTCTAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPhe-----ProGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /Clone_lib="tomato fruit red ripe, TAMU"
/note="Vector: pBlueScript SK(-); Site 1: EcoR1; Site 2:
Xho1; supplier: Giovannoni; Fruit were tagged at the
breaker stage (first sign of lycopene accumulation on the
blossom end of the fruit) and harvested 7 days
post-breaker (fully red-ripe), 10 days post breaker, and
20 days post-breaker (over-ripe), 20 day fruit which
showed external or internal signs of pathogenesis were
discarded. Fruit were cut in half and the seeds and
discarded. Fruit were cut in half and the seeds and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="pericarp"
/dev_stage="red ripe (7-20 days post-breaker)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /mol_type="mRNA"
/cultivar="TA496"
/db_xref="taxon:40"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         locules were discarded prior to freezing the pericarp."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     clone="cLEN13P22"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.94e-41
547.50
67.96%
54.37%
15.32%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       xref="taxon:4081"
 620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   620
112
28
63
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   457
                                                                                                           615
                                                                                                                                                                                     595
                                                                                                                                                                                                                          482
                                                                                                                                                                                                                                                                                                  422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                122
                                                                                                                                                542
                                                                                                                                                                                                                                                             575
                                                                                                                                                                                                                                                                                                                                       555
                                                                                                                                                                                                                                                                                                                                                                            362
                                                                                                                                                                                                                                                                                                                                                                                                               535
                                                                                                                                                                                                                                                                                                                                                                                                                                                    302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
```

ş

망 ş 밁 S 밁 밁

8

ORIGIN

δ

Ś

밁 δ 밁 á В

RESULT

5

Ş

밁

δ

밁 Ş 밁

밁

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
                           S
                                                                       밁
                                                                                                        δ
                                                                                                                                                 밁
                                                                                                                                                                              Ş
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-2 (1-686) x CV099881
                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Freq.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CV099881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           No
                                                                                                                                                                                                                                                                                                                     511 GluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeu
                                                                                                                                                   123
                                                                                                                                                                                473 ProGlu-----LeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAla
                                                                                                                                                                                                                                                           453 ProLeuTyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPhe
                                                                                                                                                                                                                                                                                                    w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tallahassee, FL; Ft. Pierce, FL, USA Tel: (850) 412-7393, (772) 462-5898 Fax: (850) 561-2617, (772) 462-5986 Email: jiang.lu@famu.edu, hong.huang@famu.edu, whunter@ushrl.ars.usda.gov, pdang@ushrl.ars.usda.seg primer: T3 Primer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Jiang Lu, Wayne Hunter, Phat Genetic Lab, Viticulture Center; U.S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 645)
Hunter, W.B., Dang, P.M., Chaparro, J.X., Lu,
Genes expressed in Vitis shuttleworthii L
Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vitis shuttleworthii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CV099881 645 bp mRNA linear EST 27-AUG-2004 FAMU USDA FP 7904 Vitis shuttleworthii L., grape Vitis shuttleworthii cDNA clone WHVs046_D11 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FAMU, USDA-ARS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Vitis shuttleworthii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CV099881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rosids; Vitaceae;
                                                                       TCAAAGCAAAACCTGTGCATCTGCTGTTCTTCACCAGAGAGGGTTTCTACAGCTGGATGCA
                                                                                                                                                                                                                            GGACTTTATCTTAACCTTAGAGAAAAAAATCCAGCACCATATGCAGCCTGGCTTAATTTT
GAAGATGAACACCTCAAATTGCAACTACAATACAGTGAAAAAGATCAGGCTGAAAATCTG
                                                                                                                                                                                                                                                                                                    AGTTATGAATTGTGTCTTACAACTCAAATGAGAAAGAGAATTGGGCAAATAGATTACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /sex="Mixed population"
/tissue_type="Entire tendril, leaves, bud, flowers"
/dev_stage="At blooming"
/lab_host="XLI-Blue"
/clone_lib="Vitis shuttleworthii L., grape"
/clone_lib="Vitis shuttleworthii I SK+; Site_1: EcoRI; Site_2:
/note="Vector: pBluescript II SK+; Site_1 EcoRI; Site_2:
XhOI; A high quality EST with at least T00 contiguous
bases at Trace Tuner score of 20 or better. Construction
by PM Dang, USDA, ARS, U.S. Horticultural Research Lab,
Ft.Pierce, FL, USA."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /mol_type="mRNA"
/db_xref="taxon:246827"
/db_xref="taxon:246827"
/clone="www.you46016"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             organism="Vitis shuttleworthii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            . . 645
                                                                                                                                                                                                                                                                                                                                                                                                                7.65e-41
541.50
70.56%
54.67%
15.16%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Vitis.
                                                                                                                                                                                                                                                                                                                                                                           (1-645)
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                            Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dang and Hong
Horticultural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lu,J.,
                                                                                                                                                                                                                                                                                                                                                                                                              645
117
34
60
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Huang, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Huang
Research Lab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and Leong,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Site_2:
                                    530
                                                                                                            510
                                                                                                                                                                                     490
                                                                                                                                                                                                                                                               472
                                                                         242
                                                                                                                                                   182
                                                                                                                                                                                                                            122
                                                                                                                                                                                                                                                                                                      62
```

```
RESULT 11
CO028609/c
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
                                       Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
        US-10-089-514-2 (1-686) x
                                                                                                                   Pred. No.:
                                                                                                                                    Alignment
                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Onygenales; mitosporic Onygenales; Coccidios 1 (bases 1 to 750)
Gardner, M. J. and Cole, G.T.
Analysis of gene expression in Coccidioides spherules via expressed sequence tags
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Gardner MJ
The Institute for Genomic Research
9712 Medical Center Drive, Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CO028609 750 bp mRNA linear 1
EST806993 Coccidioides posadasii spherule cDNA libra:
kb Coccidioides posadasii cDNA clone CIFAS82 3' end,
CO028609
CO028609.1 GI:48559837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Coccidioides posadasii
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;
Eukaryota; Fungi; Onvqenales; Coccidioides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Coccidioides posadasii
Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Other_ESTs: EST806994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCAACATTGTGATAAGAACGATTGTCATACATGAGGGTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuSerIleVallleArgThrIleValLeuAlaAspGlyGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlySerMetThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGlu 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGATCAATGACAGGTGCCCCGAAGTTAAGATCAATGGAACTTCTTGATTCTATTGAAAT-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgGlyArgLeuArgProGlyThrSerThrAlaAlaCy8ValArgAlaAlaPheProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTTCCTTGTCTTATGGATGTGGAATCATATGCAACTGTTCATACCATGGTGAGTACCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValProArgLeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGAGGAAAGAAGCAATCCAAGATGAGCCCAGTCGATTGTGTCAGAGCAGCCTTCCCAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGATTGTTGATCTTCTAAGAAATGACCTTGGTCGTGTGTGAACCTGGATCTATTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                          301 838 3519
301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                       gardner@tigr.org.
Location/Qualifiers
                                                                                                                                                                               /note="Vector: pExpress 1; Site 1: Not I; Site Coccidioides posadasii spherule cDNA library, kb "
                                                                                                                                                                                                                                            /dev_stage="spherules"
/lab_host="E. coli DH10B,
/clone_lib="Coccidioides |
                                                                                                                                                                                                                                                                                           /db_xref="taxon:199306"
/clone="CIFAS82"
                                                                                                                                                                                                                                                                                                                                       organism="Coccidioides/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                            etrain="C735"
                                                                                                                                                                                                                               .5 to 5.3 kb"
                                                   3.55e-40
535.50
66.08%
50.66%
14.99%
        CO028609
        (1-750)
                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                         posadasii"
                                                                                                                                                                                                                                           , Tl phage resistant"
posadasii spherule cDNA library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                      20850,
                                    750
115
35
74
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          644
                                                                                                                                                                                              I; Site 2: ibrary, 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST 10-JUN-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mycelia
                                                                                                                                                                                                             Eco
                                                                                                                                                                                               to 5.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     422
                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                        ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                      RESULT 12
CF598037
                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                        DEFINITION
and Wilson,R.

USDA-WashU Neospora EST Project
Unpublished (2000)

Contact: Sandy Clifton, Ph.D. - N.

USDA-WashU Neospora EST Project
Washington University School of M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               651 GlyAlaIleValSerLeuSerAspGlnGludluGluPheThrGluThrValValLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 454 LeuTyrSerAlaLeuArgAlaIleSerProValProTyrGlyAlaLeuLeuGluPhe---
                                                                                                                                                                                                                                                                       CF598037
NCEST3e06C12.y1 N
CDNA 5' similar t
CF598037
CF598037.1 GI:36
                                                                                                                                                                                                                                                                                                                                                                                                        49
                                                                                         Cole, R., Fogarty, S., Tang, K., Howe, D.K., Sibley, L.D., Clifton Marra, M., Hillier, L., Pape, D., Martin, J., Wylie, T., Theising, Bowers, Y., Gibbons, M., Ritter, E., Bennet, J., Ronko, I., Tsagareishvili, R., Fedele, M., Belaygorod, L., Franklin, C., Carr, L.M., Grow, A., Maguire, L., Wadkins, J., Richey, J., Waters
                                                                                                                                                                          Neospora caninum
Eukaryota; Alveolata; Apicomplexa; Coccidia;
Sarcocystidae; Neospora.
1 (bases 1 to 579)
                                                                                                                                                                                                                                           Neospora caninum
                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgAlaMetValThrAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuSerIleVallleArgThrIleValLeuAlaAspGlyGlnAlaGluPheGlyValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCCATGACGGGCGCTCCCAAACTCAGAGCCGTGCAAATCCTCGACGGCCTGGAAGAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerMetThrGlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGlu---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProArgLeuPheGluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IleValAspLeuValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AspGluArgLeuArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMet
                                                                                                                                                                                                                                                                                                                                                                                                      AATGCTGTTGCTACGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGGCGATTACTTGGCTCAGCGAGGGGGGAGAAAGAATGGGATGAGGTCATGGTGAAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGTCGGTGGTTATCCGTACGATTGTAAAGTACGGAAAGCAGCTTGAGCTAGGTGCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCCACATCGCCCCCAACGTCGGCGGCGTCCAGGTTCTCGAGCGATGCTTCCCACCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyArgLeuArgProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACGAGCGGAGAAAAAGTCAGTTAGCGACGGATGTCAAGGAGCTCGCCGAGAACTTAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGlyValGluSerLysProIleLysGlyThrArgProArgGlyGlyThrAlaGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCGTGGCTGAAATGAAACCAATAAAGGGAACCCTTGCCGTCAGCCCAGACAAAGAAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCAACGAGACCACCATACTCTCTTCGTCGCCCGAGAGGTTTATATCCATAGATGCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---ProGluLeuSerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTATATCTCTCCCTTCGAGAACGTAACCCCCCCCTTACTCAGCGTATATAGACTTCCGT
                                                                                                                                                                                                                                                                                                      579 bp mRNA linear EST 26-SEP-2003 NC-LIV Tachyzoite cDNA Library Neospora caninum to TR:P72539 P72539 PAPA. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                    677
                               Neospora
   Medicine
                                                                                                                                                                                                           Eimeriida;
                                                                                                                                                         Clifton
                                                                                               Waterston,
                                                                                                                                              ,
B
                                                                                                                                                             'n
```

50

170

650

230

610 290 591 350 571

630

531

530 511 590

470

491 650

551

410

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-2 (1-686) x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No.:
                                                                                                                                                                                                                                                                           576
                                                                                                                                                                                                                                                                                                                                                                                                                                                  536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          178
                                                                                                                                                418
                                                                                                                                                                                                                                    358
                                                                                                                                                                                                                                                                                                                     298
                                                                                                                                                                                                                                                                                                                                                               556
                                                                                                                                                                                                                                                                                                                                                                                                         238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: est@watson.wustl.edu
Contact David Sibley (toxoest@borcim.wustl.edu)
information relating to organism, libraries, or
Seq primer: -40RP from Gibco.
                                                                                                                                                                                                                                                                                                                                                                                                                              ValArgAsnAspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyAlaProLysLysArgThrMetGluIleIleAspArgLeuGluGluGluFroArgGly
                                                                                                                                                                                                                                                                                                                                         GluValGluThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgAlaAspLeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeu
                   IleArgThrIleVal
                                                                                                  ValTyrSerGlyAlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVal
                                                                                                                                                                                                                                  GAACCGGAAGTGGACTTTCTTGACGCTGTAATATCGGCATTTCCAGGAGGCTCGATGACA
                                                                                                                                                                                                                                                        ---ProGlyThrSerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThr
                                                                                                                                                                                                                                                                                                                     GTGACAGAGACCTACGCGACAGTGCATCAACTGGTGTCGACAATCCGAGGCAAGCTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGAACGATTTGGCAACGAACGAAAAAGATATGGTCGAGAATCTAATGATAGTTGATCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCATTTGCTGTTCTAGTCCGGAACGCTTTCTAATGAAGGATGTGGACGGTTGGCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAspGlyGlyValGlu
                                                               ATCTATAGCGGGGCGACTGGCTTCCTGTCGGTCACAGGTGAAGCCAGTTTAAACATCGTC
                                                                                                                                                                                                                                                                                                                                                                                                         GTCCGGAACGATTTAGGACGTGTCTGTATTCCAGGAACCGTGCACGTTCCTGAGTTGATG
314 286 1800
314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /dev_stage="Tachyzoite"
/lab_host="ElectroTen Blue cells (Stratagene)"
/clone_lib="Nc-LIV Tachyzoite cDNA Library"
/note="Vector: pBluescript II SK+Vector type: plasmid;
/note="Vector: pBluescript II SK+Vector type: plasmid;
/note="Vector: pBluescript II SK+Vector type: plasmid;
/note="Vector: pBluescript II SK+Vector type: plasmid;
/note="Vector: pBluescript II SK+Vector type: plasmid;
/note="Vector: pBluescript II SK+ vector, and electroporated into ElectroTen Blue cells (Stratagene).

The cDNA were directionally cloned into the EcoRI/XhoI prepared pBluescript II SK+ vector, and electroporated into ElectroTen Blue cells (Stratagene).
The library may contain a small percentage of host or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Forest Park Parkway, Box 8501, St.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bacterial contaminants."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Neospora/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.16e-39
525.50
75.15%
66.06%
14.71%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     xref="taxon:29176"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CF598037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1-579)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Louis, MO 63108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         579
109
15
40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for further clone availability.
                                                                                                       634
                                                                                                                                                477
                                                                                                                                                                                        614
                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                           594
                                                                                                                                                                                                                                                                                                                     357
                                                                                                                                                                                                                                                                                                                                                          575
                                                                                                                                                                                                                                                                                                                                                                                                      297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     515
```

В

Ş 밁 Ś

망 á 밁 Ś 밁 Ş 밁 Ś В Ś 밁 S

```
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 13
AW509018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POCAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
     US-10-089-514-2 (1-686)
                                                                                     Query Match:
                                                                                                                                             Percent Similarity:
                                                                                                                                                                          score:
                                                                                                                                                                                                    Pred. No.:
                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     538 ATTCGAACAGTCGTC 552
                                                                                                                  Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EST.
Glycine max (soybean)
Glycine max
wiridinlar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Other_ESTs: BE823672 corresponding to Gm-r1070-8099 (3') Contact: Shoemaker R/Public Soybean EST Project Public Soybean EST Project Washington University School of Medicine 4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, 701, 214, 267, 1807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Shoemaker,R., Keim,P., Vodkin,L., Erpelding,J., Coryell,V., Khanna,A., Bolla,B., Marra,M., Hillier,L., Kucaba,T., Martin,J., Khanna,A., Bolla,B., Marra,M., Feetoe,M., Theising,B., Allen,M., Beck,C., Wylie,T., Underwood,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B., Swaller,T., Gibbons,M., Pape,D., Harvey,N., Schurk,R., Ritter,E., Kohn,S., Shin,T., Jackson,Y., Cardenas,M., McCann,R., Waterston,R. and Wilson,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AW509018 528 bp mRNA linear EST 24-JUL-2004 si39b01.yl Gm-r1030 Glycine max cDNA clone GENOME SYSTEMS CLONE ID: Gm-r1030-1250 5' similar to TR:Q9ZV26 Q9ZV26 SIMILAR TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: est@watson.wustl.edu
This clone is available through: ResGen, Invitrogen Corp.
South Memorial Parkway Huntsville, AL 35801 For further it
South Memorial arkway funtsville at email: ccu@resgen.com
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREPTOMYCES PAPA. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            High quality sequence stop: 337.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AW509018.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 528)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone lib="Gm-r1030"
/note="Vector: psporT1; Bite 1: Sall; Site 2: NotI; This cDNA library was constructed from mRNA isolated from immature octyledons of greenhouse grown plants (individual seed fresh weight of 100-300mg). The library was prepared using the Life Technologies psuperscript cDNA was prepared using the Life Technologies psuperscript cDNA library construction kit. Complementary DNA was synthesized from mRNA using a poly(dT) sequence with a NotI restriction site. Gall linkers adapters were ligated to the blunt-ended cDNA fragments followed by NotI
                                                                                                                                                                                                                                                                                                           digestion. The cDNA fragments were directionally cloned into the NotI-SalI restriction site of the pSPORTI vector. The ligated cDNA fragments were transformed into E. coli ElectroMax DH10B host cells. This library was constructed by Dr. Lila Vodkin and Dr. Anu Khanna. Note that Gm-r1030 is a re-rack of Gm-c1007."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Glycine max"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Clone="GENOME SYSTEMS CLONE ID: Gm-r1030-1250"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     db xref="taxon:3847"
                                                       4.49e-38
511.00
75.29%
58.05%
14.30%
x AW509018
     (1-528)
                                                                                  Conservative: Mismatches: Indels:
                                                                                                                                                                    Length:
Matches:
                                                          Gaps:
                                                       528
101
30
43
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63108,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    information
```

```
RESULT 14
CF703510/c
LOCUS
DEFINITION
                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                            JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
KEYWORDS
                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                  CF703510
890 bp mRNA linear EST 16-AUG-2 (CAFB09TO C.neoformans strain JEC21 Cryptococcus neoformans var. neoformans cDNA clone CCAFB09, mRNA sequence.
CF703510
CF703510.1 GI:41557669
EST.
                                                                                                                           Fax: 301-838-0208
Email: crypt@tior
                                                                                                                                               Department of Eukaryotic Rockville, MD 20850, USA Tel: 301-838-3543
                                                                                                                                                                                                           JEC21 cDNA library Unpublished (2003) Other_ESTs: CCAFB09TR
                                                                                                                                                                                                                                                                                        Cryptococcus neoformans var. neoformans
Eukaryota; Fungi; Basidiomycota; Hymenomycetes;
Heterobasidiomycetes; Tremellomycetidae; Tremellales;
                                                                                                               Seq
                                                                                                                                                                                                                                            End sequencing of clones
                                                                                                                                                                                               Contact: Brendan Loftus
                                                                                                                                                                                                                                                           Loftus, B.
                                                                                                                                                                                                                                                                                                                                       Cryptococcus neoformans var. neoformans
                                                                                                                                                                                                                                                                                 Filobasidiella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlnGluGluPheThrGluThrValValLygAlaArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValLeuAlaAspGlyGlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAsp 658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGTATTGGATTTTTCTCATATAATCAAGCATTTGATCTGAATATTGTGATAAGAACAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGAGATCAATGGAACTTCTTGATTCTATTGAAAGTTGTTCTCGAGGTATCTACTCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LysArgThrMetGluIleIleAspArgLeuGluGluGlyProArgGlyValTyrSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerThrAlaAlaCysValArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLys 598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrTyrAlaProValHisGlnLeuValSerThrIleArgGlyArgLeuArgProGlyThr 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuAlaGlyArgGluLysAspArgAlaGluAsnLeuMetIleValAspLeuValArgAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTTGAGACGÁGTATGAAGÁGATGGGTATGAAGACACGÁGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaLeuGlyTrpPheAlaLeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIle 638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AspLeuAsnSerValCysAlaIleGlySerValHisValProArgLeuPheGluValGlu 558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTGTACACGAGGGTGAAGCTTCAATAGGAGCTGGACGGCAATGGTTGCTCTGTCAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCTTGGCCGTGTTTGTGATCCTGGATCTGTTCATGTGCCACGTCTCATGGATGTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTACAGTTCAGCGAAAAAGGATCAGGCTGAAAACCTGATGATTGTTGACCTTCTAAGGAAT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCAAGGGAACGATAGCTCGTGGTGCTACTGAAGAGATGAGCTAAGCTAAAATTTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to
                                                                                                              primer: TF
                                                                                                                                                                                                                                                                                                                              neoformans)
                                                                                                                        crypt@tigr.org
/organism="Cryptococcus neoformans var. neoformans"

/mol_type="mRNA"

/strāin="JEC21"

/db_xref="Leaxon:40410"

/clone="CCAFB09"

/clone="CCAFB09"

/clone_lib="C.neoformans strain JEC21"

/note="Vector: pCMVSport6; Site_1: NotI_EcoRV; The
                                                                                         Cocation/Qualifiers
                                                                                                                                                                                                                                                                      890)
                                                                                                                                                                                                                                             from
                                                                                                                                                                       Genomics,
                                                                                                                                                                                                                                            b
                                                                                                                                                                                                                                           Full length
                                                                                                                                                                       TIGR, 9712 Medical Center Drive,
                                                                                                                                                                                                                                                                                                                                        (Filobasidiella
                                                                                                                                                                                                                                            enriched,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 672
                                                                                                                                                                                                                                                                                                                                                                                                                                                           522
                                                                                                                                                                                                                                                                                                                                                                                                              EST 16-AUG-2004
                                                                                                                                                                                                                                            normalized
                                                                                                                                                                                                                                                                                         Tremellaceae;
                                                                                                                                                                                                                                                                                                                                        neoformans
       full
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
    RESULT 15
CF704316/c
                                                                                                     9
                                                                                                                                   무 9
                                                                                                                                                                                 # 9
                                                                                                                                                                                                                                B 8
                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                         멅
                                         무
                                                                                      멅
                                                                                                                                                                                                                                                                           멅
                                                                                                                                                                                                                                                                                                                           U
                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 벋
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멀
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            므
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOBBODA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
```

length, normalized library was prepared from a variety of conditions using RNA provided by Joseph Heitman and Jennifer Lodge"

Alignment Pred. No.:	Scores: 1.07e-36 Length:
Score: Percent Simi Best Local & Query Match: DB:	SOU.00
US-10-089-	-514-2 (1-686) x CF703510 (1-890)
Ş	roThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSe
9	CȚTGCACCTTCGGAAATTCAACC
Σγ	466 TyrGlyAlaLeuGluPheProGluLeuSer
ъ	CTCTA
γÇ	477ValLeuSerAlaSerProGluArgPheLeuThrIleGlyAlaAsp 491
В	768 ACACAGGGTATCACCATCCTCTAAGTTCTCCTGAACGGTTCTTGAAAATCAACTCCTCC 709
Σγ	492 GlyGlyValGluSerLysProIleLysGlyThrArgProArg 505
8	708 AGACAAGTGGAGATGATGCCCATCAAGGGAAGCGAGAGCGAGAGTCAAGGAAGACCAATGT 649
γ	506 508
ъ	648 ATATGTCGACCTGGCATCGGGTGTGGGGGAGAAAACCCCAGGCTCGGTGGAGTGCAAACAG 589
Ϋ́	509AlaGluGluAspGluArgLeuArgÀlaAspLeuAlaGlyArgGluLysAspArg 526
8	588 GAAGGGAGAAGGATGAGCGAAGAGGGAGAGTTGGTTGAAGATGTCAAAGAACGG 529
γ	527 AlaGluAsnLeuMetIleValAspLeuValĀrgAsnAspLeuAsnSerValCysAlaIle 546
ᅜ	528 GCAGAAAACCTCATGATTGTTGATCTTATCCGATCCGAT
γ	547 GlySerValHisValProArgLeuPheGluValGluThrTyrAlaProValHisGlnLeu 566
ğ	
ΥC	SerThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAlaCysValA
ğ	411 GTGACAACAGTGCAAGGCACGTTGGCAGATÁATGTTGGGAGTGTGGAAGCTGTCAAAAGA 352
¥	587 AlaPheProGlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIleIleAsp 606
8	351 TGTTTCCCGCCTGGTTCCATGACGGGTGCACCGAAGTTGAGGTCAGTACAGCTTTTGGAT 292
¥	607 ArgLeuGluGluGlyProArgGlyValTyrSerGlyAlaLeuGlyTrpPheAlaLeu 625
¥	291 GAGTTTGAGAACCATCAGCGAAGGGGCGTATACTCCGGTGCTTTTGGGTTACTTTTCTGTC 232
¥	626 SerGlyAlaAlaAspLeuSerIleVallleArgThrIleValLeuAlaAspGlyGlnAla 645
¥	231 GATGGAGTCACAGATCTCAGTGTCATTCGTACGATCGTAGTCGAGGATAATCGATTA 172
¥	646 GluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPheThrGlu 665
ŏ	171 AGTATCGGGGCTGGAGGTGCCATCACCTGGCTATCGGATAGGGAGAAGGAATGGGATGAG 112
¥	alValLysAlaArgAlaMetValThrAlaLeuA
ŏ	111 GTGTTGACCAAGGTGAAGTCTGTAGTTGGAAGAATAGAGGATGGAGAATGACATGCTGGC 52
RESULT 15	

Ş

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
   밁
                          ş
                                                            밁
                                                                                     Ś
                                                                                                                      밁
                                                                                                                                                                                  밁
                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-2 (1-686) x CF704316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scores:
                               509
                                                                                          506
                                                                                                                                                    490
                                                                                                                                                                                                                 477
                                                                                                                                                                                                                                               841
 601
                                                            661
                                                                                                                      721
                                                                                                                                                                                  781
                                                                                                                                                                                                                                                                             464
                                                                                                                                                                                                                                                                                                        901 TCCACCCCTTCATCTTTCGATCCTTTCGCTCTGTACTGCACCTTTCGGAAATTCAACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST.
Cryptococcus neoformans var.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCP704316 906 DP HAVEN CALLULATED TO CCACCH30TO C.neoformans strain JEC21 Cryptococcus neoformans var. neoformans cDNA clone CCACN30, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Department of Eukaryotic
Rockville, MD 20850, USA
Tel: 301-838-3543
Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (2003)
Other_ESTs: CCACN30TR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cryptococcus neoformans var. neoformans
Bukaryota; Fungi; Basidiomycota; Hymenomycetes;
Heterobasidiomycetes; Tremellomycetidae; Tremellales;
Filobasidiella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CF704316
CF704316.1 GI:41558475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: crypt@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Brendan Loftus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Loftus, B.
                                                                                                                                                                                                                                                                   ValProTyrGlyAlaLeuLeuGluPheProGluLeuSer------
                                                                                                                                        CAATGTATATGTCGACCTGGCATCGGGTGTGGGGGAGAAAACCCCAGGCTCGGTGGAGTGC
                                                                                                                                                                                 TCAGGAACACAGGGTATCACCATCCTCAAGTTCTCCTGAACGGTTCTTGAAAATCAAC
                                                                                                                                                                                                                                           GCCTATTACTCTACCTATATGAGTTTCCCCCGCCCTCTCAACCTCTTCATTACATGGCAGC
                                                                                                                                                                                                                                                                                                                                    ThrAlaProThrGluAlaThrAlaLeuProLeuTyrSerAlaLeuArgAlaIleSerPro
AAACAGGAAGGGAGAAGGGATGAGCGAAGAGGGGAGAATTGGTTGAAGATGTCAAA
                                                                                                                   TCCTCCAGACAAGTGGAGATGATGCCCATCAAGGGAACGAGAGCGAGAGTCAAGGAAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequencing of clones
21 cDNA library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        primer: TF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:40410"
/clone="CCACN30"
/clone="CCACN30"
/clone="b="C.neoformans strain JEC21"
/clone_lib="C.neoformans strain JEC21"
/note="Vector: pCNVSport6; Site 1: NotI EcoRV; The full length, normalized library was prepared from a variety conditions using RNA provided by Joseph Heitman and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Jennifer Lodge"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'organism="Cryptococcus neoformans var. neoformans"
|mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               strain="JEC21"
                                                                                                                                                                                                                                                                                                                                                                                                             1.1e-36
500.00
54.96%
41.13%
13.99%
                    -AlaGluGluAspGluArgLeuArgAlaAspLeuAlaGlyArgGluLys
                                                                                                                                                                                               -ValLeuSerAlaSerProGluArgPheLeuThrIleGly
                                                                                                                                                                                                                                                                                                                                                                     (1-906)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genomics,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 neoformans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                       -GlyGlyThr--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Full length enriched, normalized
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIGR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Filobasidiella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9712
                                                                                                                                                                                                                                                                                                                                                                                                906
116
39
85
42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Medical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST 16-AUG-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tremellaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 neoformans
                                                                                                                                                                                                                                                                           1
542
                                                          602
                                                                                                                     662
                                                                                                                                                                               722
                                                                                                                                                                                                             489
                                                                                                                                                                                                                                                                                                        842
                                                                                                                                                   505
                                                                                                                                                                                                                                                                          476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of,
```

```
644 GlnAlaGluPheGlyValGlyGlyAlaIleValSerLeuSerAspGlnGluGluGluPhe
                                 683 AlaGly
                                                                               124
                                                                                                                     664
                                                                                                                                                             184
                                                                                                                                                                                                                                           244
                                                                                                                                                                                                                                                                624 AlaLeuSerGlyAlaAlaAspLeuSerIleVallleArgThrIleValLeuAlaAspGly
                                                                                                                                                                                                                                                                                                                         304 TTGGATGAGTTTGAGAACCATCAGCGAAGGGGGCGTATACTCCGGTGCTTTGGGTTACTTT
                                                                                                                                                                                                                                                                                                                                                605 IleAspArgLeuGluGluGlyPro---ArgGlyValTyrSerGlyAlaLeuGlyTrpPhe
                                                                                                                                                                                                                                                                                                                                                                                                         364 AAAAGATGTTTCCCGCCTGGTTCCATGACGGGTGCACCGAAGTTGAGGTCAGTACAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                 585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     424 AACCTAGTGACAACAGTGCAAGGCACGTTGGCAGATAATGTTGGGAGGTGTGGAAGCTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          545 AlaIleGlySerValHisValProArgLeuPheGluValGluThrTyrAlaProValHis
64
                                                                             GATGAGGTGTTGACCAAGGTGAAGTCTGTAGTTGGAAGAATAGAGGATGGAGAATGACAT
                                                                                                                 ThrGluThrValValLysAlaArgAlaMetValThrAlaLeu---AspGlySerAlaVal
                                                                                                                                                             CGATTAAGTATCGGGGCTGGAGGTGCCATCACCTGGCTATCGGATAGGGAGAAGGAATGG
                                                                                                                                                                                                                                           TCTGTCGATGGAGTCACAGATCTCAGTGTTGTCATTCGTACGATCGTAGTCGAGGATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                ArgAlaAlaPheProGlyGlySerMetThrGlyAlaProLysLysArgThrMetGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlnLeuValSerThrIleArgGlyArgLeuArgProGlyThrSerThrAlaAlaCysVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATCCCGTCAACAGTCACCGTTCCAAAACTTATCGCTCTTGAATCCTATGGG---GTGCAT
                                     684
                                                                               65
                                                                                                                     682
                                                                                                                                                                                                   663
                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                 643
                                                                                                                                                                                                                                                                                                                       245
                                                                                                                                                                                                                                                                                                                                                                                                       305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           564
                                                                                                                                                             125
                                                                                                                                                                                                                                                                                                                                                               623
                                                                                                                                                                                                                                                                                                                                                                                                                                               604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     482
```

Search completed: October 5, 2005, 18:37:41
Job time: 7524.63 secs

S 밁 Ś 밁 S 밁 ঠ 밁 Ş 밁 á 뮍 Ş 밁 Ś 밁

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Perfect score:
                                                                                                                                    0000
                                                                                                                                                                                                                                                                                                                                                         იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
         296.4
135.6
135.6
135.6
135.6
                                                                                         55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00
55.00

    No. is the number of results predicted by chance to have a
re greater than or equal to the score of the result being printed,
is derived by analysis of the total score distribution.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           seq
                                                                                                                                                                                                                                                                                                                                                                                                                  64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-3
312
1 atgaccgagcagaa
100.0
43.5
43.5
43.5
100.5
43.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  October 4, 2005, 19:00:45 ; Search time 1433.22 Seconds (without alignments)
10548.289 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4708233 seqs, 24227607955 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenEmbl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        atgaccgagcagaacgagct.....cggccgaggaccggcggtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gb_pat:
gb_p1:*
gb_p1:*
gb_pr:*
gb_ro:*
gb_sts:*
gb_sts:*
gb_un:**
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Copyright
                                          2888
4749
10029
113635
113635
116905
11964
110905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
11905
1190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5251
14159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        `a
:•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version (c) 1993 - 2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멂
                                 A48325
A48323
A48323
AR198353
SPU60417
AF26301182
AE005068
AK121213
AE005069
AF006840
AF006840
3
SCO939120
SCO939120
BX640435
AF521085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BD178314
BD093915
AB116234
AF262220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5.1.6
Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9416466
                                 AK121213 Oryza sat
AE00550 Halobacte
Continuation (34 o
AL939120 Streptomy
AL939112 Streptomy
BX640435 Bordetell
AF521085 Streptomy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BD178314 Transform
BD093915 Transform
AB116234 Streptomy
AF262220 Streptomy
A48325 Sequence 3
AR198355 Sequence 1
AR19835 Sequence 1
AR19853 Sequence
                                                                                                                                                                                                                                                                                                                                                    U60417 Streptomyce
AF263012 Streptomy
AE005068 Halobacte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Description
```

٠.	۸.		۸.	۸.	٠.					,			Ω (.)				ი 					ი 		o 	
5	44	43	42	41	40	39	8	37	36	š	34	ũ	32	Ξ	ö	9	8	27	26	ភ	24	23	22	21	20
54	54	54	54	54	54	54	54	54	54	54	54.4	54.4	54.4	54.4	54.4	54.4	54.6	54.6	54.6	54.6	٠	54.8		54.8	54.8
'n	17.3	17.3	17.3	17.3	17.3		17.3	17.3	17.3	17.3	17.4	17.4	.4	17.4	17.4	17.4	17.5		17.5	17.5	17.5	17.6	٠	17.6	17.6
190050	5392	5392	5392	5392	5392	1208	1208	1208	1208	1208	349726	346259	343473	321250	197050	110000	110000	89976	89713	73882	1349	349028	300800	45055	1458
_	6	σ	σ	σ	σ	δ	6	თ	σ	თ	щ	ᆫ	_	_	_	_	ᆫ	_	Ь	თ	4.	H	Ь	9	σ
AL646080	AR442757	AR124150	AR099265	AR069869	A37831	AR442760	AR124153	AR099268	AR069872	A37834	BX640421	BX640435	BX640451	SC0939111	AL646081	AP006618_43	AP006618_28	AJ632270	AJ605139	CQ870950	BOVT2TRANS	BX640413	AP005036	AX574197	AX573996
AL646080 Ralstonia	AR442757 Sequence		AR099265 Sequence	AR069869 Sequence	A37831 Sequence 1	AR442760 Sequence	AR124153 Sequence		AR069872 Sequence	A37834 Sequence 4	BX640421 Bordetell	BX640435 Bordetell	BX640451 Bordetell	AL939111 Streptomy	AL646081 Ralstonia	Continuation (44 o	Continuation (29 o		AJ605139 Actinopla	CQ870950 Sequence	M24103 Bovine ADP/	BX640413 Bordetell	AP005036 Streptomy		AX573996 Sequence

ALIGNMENTS

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 1
BD178314
LOCUS
DEFINITION
                                 ORIGIN
                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                             LULINOBACTERIA; Actinobacteridae; Actinomycetales;
LULINOBACTERIA; Actinobacteridae; Actinomycetales;
1 (bases 1 to 312)
AUTHORS
Yanai,K., Sumida,N., Watanabe,M.; Moriya,T. and Murakami,T.
Transformant producing PF1022 substance and process for producing the same and novel biosynthetic gene
Patent: WO 02077244-A 2 03-OCT-2002;
MEJJI SEIKA KAISHA LTD,KOJI YANAI,NAOMI SUMIDA,MANABU WATANABE,
TATSUKI MORIYA,TAKESHI MURAKAMI
OS Streptomyces venezuelae
PN WO 02077244-A/2
PD 03-OCT-2002
PF 22-MAR-2001 W7 2002JPA^^-
PR 22-MAR-2001 W7 2002JPA^^-
PR 22-MAR-2001 W7
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transformant producing PF1022 substance and process the same and novel biosynthetic dene.
BD178314
BD178314.1 GI:30015579
WO 02077244-A/2.
                                                                                                                                        유표은
                                                                                                                                                                                                      12 2 B
                                                                                                                                    Key
CDS
                                                                                                                                                                                                                      MURAKAMI
C12N15/61,C12N1/15,C12P17/14//(C12N1/15,C12R1:645),(C12P17/14,C12R1:645)
                                                                                                                                                                                                      Transformant producing PF1022 substance and process for
                                                                                                                                                                                                                                                                                     22-MAR-2002 WO 2002JP002782
22-MAR-2001 JP 01P 082227
KOJI YANAI,NAOMI SUMIDA,MANÄBU WATANABE,TATSUKI MORIYA,TAKESHI
                                                                                                                                                                                    producing the same
                                                                                                                               novel biosynthetic gene Location/Qualifiers (1). (309).
                                               /organism="Streptomyces
/mol_type="genomic DNA"
/db_xref="taxon:54571"
                                                                                                               Location/Qualifiers
100.0%; Score 312;
                                                                                   venezuelae"
BB
6
Length 312;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               and Murakami, T. process for producing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PAT 16-APR-2003
for producing
```

Streptomy

120 60

300 300 240 240 180 180

```
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 2
BD093915
                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                           Query Match
Best Local (
                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
nes 312; Conserv
                                                                                                                                                                                                                                 Transformants that produce secondary metabolites modified by a functional group(s) and novel biosynthesis genes
Patent: WO 0123542-A 2 05-APR-2001,
MAIJI SEIKA KAISHA LTD, KOJI YANNI, KAORU OKAKURA, SHOHEI YASUDA,
MANABU WATANABE, KOICHI MIYAMOTO, NAOKI MIDO, TAKESHI MURAKAMI
OS Streptomyces venezuelae
PN WO 0123542-A/2
PD 05-APR-2001
PF 29-SEP-2000 WO 2000JP006783
PF 29-SEP-2000 WO 2000JP006783
PR 29-SEP-1999 JP 99P 276314
PI KOJI YANAI, KAORU OKAKURA, SHOHEI YASUDA, MANABU WATANABE, KOICHI
PI MIYAMOTO,
PI NAOKI MIDO, TAKESHI MURAKAMI
PC C12N15/09, C12N5/10, C12P21/02, C07K11/00//(C12P21/02, C12R1:645)
PT CDS
Location/Qualifiers
FT CDS
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                        al Similarity
312; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomyces venezuelae Bacteria; Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BD093915.1 GI:22639503
WO 0123542-A/2.
Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and Murakami, T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomycineae; Streptomycetaceae; 1 (bases 1 to 312)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Yanai, K., Okakura, K., Yasuda, S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transformants that functional group(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGGAGCTCGACGCCCTCGACGGGACG
 ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCAGGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCGGCGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCTGGACACGGTGCGGCGCCGCATCGGCTCGGTGTCCGCATCGCGGGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACCGGCGGTGA 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGCGACGCCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative (
                                                        100.0%; ilarity 100.0%; Conservative 0
                                                                                                                                                                                                                 Location/Qualifiers
(1)..(309).
Location/Qualifiers
                                                                                                                                               organism="Streptomyces venezuelae"
/mol_type="genomic DNA"
/db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   312 bp DNA linear produce secondary metabolites and novel biosynthesis genes.
                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                        Score 312; DB 6;
Pred. No. 4.1e-33;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. 4.1e-33;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Watanabe, M., Miyamoto, K., Mido,
                                                                                                                                                                                                                                                                                      ,C07K11/00//(C12P21/02,C12R1:645)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomyces
                                                                                         Length
                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   r PAT 27-
s modified
                                                                                                                                                                                                                                                                                                                                           WATANABE, KOICHI
                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       γ̈́
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120
                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
AB116234
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                  Sg
                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301 GACCGGCGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5251 bp DNA linear BCT 03-JUI Streptomyces venezuelae papA, papC, papB, ORFIV genes for 4-amino-4-deoxychorismate synthase, 4-amino-4-deoxyprephenate dehydrogenase, 4-amino-4-deoxychorismate mutase, hypothetical protein, complete cds.
AB116234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Н
                                                                                                                                                                                                                                                                                                                               Odawara-shi, Kanagawa 2500852, Japan (E-mail:koji yanai@meiji.co.jp, Tel:8 Fax:81-465-37-6397)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomyces venezuelae
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                           Submitted (01-AUG-2003) Koji Yanai, Meiji Seika Kaisha, Microbiological Resources and Technology Laboratories;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Yanai, K., S
Murakami, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Para-position derivatives of engineered with Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Yanai,K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Murakami, T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AB116234.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15184904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCGGCGGTGA 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCCTGGACACGGTGCGGCGCCGCATCGATCGCGTGTCCGCATCGCGGGGGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 5251)
nai, K., Sumida, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biotechnol.
                                                                                                                                                                                                                               /organism="Streptomyces
/mol type="genomic DNA"
/db_xref="taxon:54571"
/51. .2711
/transl_table=11
/product="4-amino-4-deoxychorismate synthase"
/product="4-amino-4-deoxychorismate synthase"
/protein_id="BAD21140.1"
/db_xref="GI:47846866"
/translation="WRTLLIDNYDSFTHNLFQYIGEATGQPPVVVPNDADWSRLPVED FDAITVSPGPGSSPDREDFGISRAITDSGLPVLGVCLGHQGIAQLFGGTVGLAPEPM HGRVSEVRHTGEDVFRGLPSPFTAVRYHSLAATDLPDELEPLAWSDDGTVVMGLRHREK PLWGSVQFHPESIGSDFGREIMANFRDLALAHHRARRHGADSPYELHVRRVDVLPDAEE
                                                                                                                                                                                              /gene="papA"
651. .2711
                                                                                                                                           /codon_start=1
/evidence=experimental
                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                              gene="papA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sumida, N.,
                                                                                                                                                                                                                                                                                                          .5251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:47846865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22 (7),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Okakura, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Okakura, K., Moriya, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        848-855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       fungal anthelmintic cyclodepsipeptides venezuelae antibiotic biosynthetic
                                                                                                                                                                                                                                                                                                                                                            Tel:81-465-37-5106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Moriya, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Watanabe, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Watanabe, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BCT 03-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                               788
                                                                                                                                                                                                                                                                                                                                                                                               Kayama,
```

```
ORIGIN
                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                           Local Similarity
                                                                                 3733
                                                                                                                                                                    3673
                                       121
                                                                                                                                                                                                                                                   312;
                                                                                                                        61
                                                                                                                                                                                                            μ
CGGCACGGCGTCCCCGATGATGCAGCCCGGCCCGGCTCAGCCTCGTCAAGGACAGGGCCGCC
                                                                                                         CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGGTACAAGTCC
                                                                                                                                                                                        ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                     cescacescerccearearecaecceseccesercaeccresrcaaesacaeseccecc
                                                                                 CTCCTGGACACGCTGCGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                  ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                               /evidence=not_experimental
/transl_table=11
/produce: "hypothetical_protein"
/protein id="BAD21143.1"
/protein id="BAD21143.1"
/protein id="BAD21143.1"
/db_xref="GI:47846869"
/translation="WHATTTLAALTGRTAAQQPYWPDPDAVDTVERELAGLPVLTPED
EVVDLMNGMALVARGAALLVQGGDCAERFHEAVPDLVRRKVDNLQGLAAIMRAGSGLP
EVVDLMNGMALVARGAALLVQGGDCAERFHEAVPDLVRRKVDNLQGLAAIMRAGSGLP
AVALGRIAQQYGKPRSSPFTTESGAGRKMPSYCGDAVNEPEFEPAARTPEPRILLTA
YTCSQIVLDEIRRSWSGRPVLERVYTSHELLLLPYERPLVREGAHGTYSGSAHFWIG
ERTRREDGAHVALAQAVHNPVGVKLGPTVSPEDAVALSRSLNPEGVGRLTFIVRFGA
KEUDELLPPVVRAVARHGAPVVWLCDPMHGNGLKLAGHKTRLIEPMRAETAAFVRTLR
EHGQWPAGLHLELTPDDPVTECVSELDRPPRFTDYRSTCDPRLNPEQSADMVTHFLSLL
"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="papC"
2708. .3676
/gene="papC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="papB"
/codon_start=1
/evidence=experimental
/evidence=experimental
/transl_table=11
/transl_table=11
/product="4-amino-4-deoxychorismate mutase"
/product="4-amino-4-deoxychorismate mutase"
/protein_id="BAD21142.1"
/db_xref="GI:47846868"
/translation="WTEQNELORIRAELDALDGTLLDTVRRRIDLGVRIARYKSRHGV
pmMQPGRVSLVKDRAARYAADHGLDESFLVNLYDVIITEMCRVEDLVMSRESLTAEDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTTERPFFNYLEQLERRRYDVAPELPFEFNLGYVGYLGYEKAETTGDPAHRSPHP
DAAFLFADRAI ALDHQEGCHAE
DAAFLFADRAI ALDHQEGCHAE
AMVFGI PEAAAGFGPLARCHYLKHAEHDDGARAINLEETAETLTIGLAVRAPEAFTP
AMVFGI PEAAAGFGPLARCHHXDAYLKR I DECLKEI KNEESYEI CLTIMVYTAPTERT
ALPLYSALRAI SPVPYGALLEFPELS VLSAS PERFLTI GADGGVESKPI KGTRPRGGT
AEEDERLRADLAGREKDRAENLMI VDLVRNDLMSVCAI GSVHVPRLFEVETYAPVHQL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="ORFIV"
4065. .5243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="papB"
3673. .3984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPD ACLVCDVTAFCFELAAALRDADLVLAVHEDVALKAVAPVTRLMRPGALLADTLSVRTGMAALAALRDADLVLLAVHEDVALKAVAPVTRLMRPGALLADTLSVRTGMAALAAHAPOVQHVGLUMPMFAFAAGMTGRPVAAVVTRDGPGVTALLRLVEGGGRPVRLTAAELDHDRTTAATQALTHAVLLSFGLALARLGVDVRALAATAPPHOVLLALLARV VLGSPEVYGDIQRSNPRAASARRALAEALRSFAALVGDDPDRADAPGRADAPGHPGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DGAGNLDGVFGELRRLMGPELAAGQDHCQELFRTLHRTDDEGEKDR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VSTIRGRLRPGTSTAACVRAAFPGGSMTGAPKKRTMEIIDRLEEGPRGVYSGALGWFA
LSGAADLSIVIRTIVLADGQAEFGVGGAIVSLSDQEEEFTETVVKARAMVTALDGSAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VRRGCLPGEGTTFWLDSSSVLEGASRFSFLGDDRGPLAEYLTYRVADGVVSVRGSDGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene="ORFIV"
                                                                                                                                                                                                                                                                       100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .3676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .3984
                                                                                                                                                                                                                                                     <u>,</u>
                                                                                                                                                                                                                                                                         Score 312; DB 1
Pred. No. 2e-33;
                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                           DB 1;
                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                             Length 5251;
                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                   0
                                                                                                                                                                3732
                                       180
                                                                                                                          120
                                                                                 3792
                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 4
AF262220
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REMARK
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                 CDS
```

밁 á 밁 ঠ 밁 á

3852

```
3973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (05-JUN-2001) Biology, Dalhousie Uni
St, Halifax, NS B3H 4JI, Canada
Sequence update by submitter
On Jun 5, 2001 this sequence version replaced
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  He,J., Magarvey,N., Piraee,M. and Vining,L.C.
The gene cluster for chloramphenicol biosynthesis in Streptomyc venezuelae ISP5230 includes novel shikimate pathway homologues a monomodular non-ribosomal peptide synthetase gene Microbiology 147 (Pt 10), 2817-2829 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (01-MAY-2000) Biology, St, Halifax, NS B3H 4J1, Canada 3 (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 (bases 1 to 14159)
He,J., Magarvey,N.A. and Vining,L.C
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptomyces venezuelae Bacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomyces venezuelae chloramphenicol biosynthetic gene cluster, partial sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AF262220.2 GI:14290414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11577160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCGGCGGTGA 3984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACCGGCGGTGA 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Magarvey, N.A. and Vining, L.C.
                                                                                                                                                                                                                                                                             /product="CmlG"
/product="CmlG"
/protein_id="AAG21974.1"
/protein_id="AAG21974.1"
/db_xref="G1:10716944"
/translation="MTAGSPGPAGRTPLRPRALAVRDIHSFLADLGMDCDVNPCTAFV
/translation="MTAGSPGPAGRTPLRPRALAVRDIHSFLADLGMDCDVNPCTAFV
/translation="MTAGSPGPAGRTPLRPRALAVRDIHSFLADLABVVDLLADVGDLADVDLLADLADLAGTAFALADLATHANNSRPLATIADIRAHLAD
LVTAYHNSRPLATIBANATAYRHTDGEYLVFVKFSHLIVDLADVVDLLAGIRAHLAD
LVTAYHNGRPLATIBANATAYRHTDGEYLVFVKFSHLIVDLADVVDLTSASVEEML
DTPPGRIGSRYRHHARTVEQYTALPAADPAEVTRALGELPVPGRKGIPTISASVEEML
/note="non-ribosomal peptide synthetase; reductase-like domains near C-terminus" (codon start=1 /cransī_table=11
                                                                                                                                                                                                                    PLREGVTFDELLSAVTGVLLPALGGGLVLQYPYSRWEFATKGGYYVEIKPLVVRPGLP
SDYTPEYFAKTRHAQESLGRFTMSDLDAFARAFTSGRMPRVVVSDTTFMRPEPDRWRW
                                                                                                                                                                                        VPVRSARVFEDLKFLADRSWPGPPLLRMQYKRGFLSPGAAADVLDGLKQRIGASGGTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            map="adjacent to pabAB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mol_type="genomic DNA"
|strain="ISP5230"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          function="essential for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . .14159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14159 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dalhousie University, 1355 Oxford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      venezuelae"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dalhousie University, 1355 Oxford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chloramphenicol biosynthesis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gi:10716943.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCT 09-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3972
```

```
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_teature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                 11202
                                                                                                                                                                                                11262
                                                                                                                                                                                                                                                                                                                              11142
                                                                                                                               11322
                                                                                                                                                              177
                                                                                                                                                                                                                              117
                                                                                               237
                                                                                                                                                                                                                                                                                               57
                                                                                                                                                                                                                                                                                                                                             1 ATGACCGAGCAGAACGAGCTGCA----GCGGCTGCGCGCGGAGCTCGACGGCGCGCGAGCTCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                              GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGC
                                                                                   GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGC
                                                                                                                                                    CGCCCGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                                                                                                              GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGC
                                                                                                                                                                                                                                                             GACGCTTCTGGACACGGTGCGGCGCGCGTACAA
                                                                                                                                                                                                                                                                                       ATGACCGAGCAGAACGAGCTGCAGGTTGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGG
CGAGGACCGGCGGTGA 11457
                           CGAGGACCGGCGGTGA
                                                                                                                             CGCCCGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="CmlH"
/protein_id="AaG21975.2"
/db_xref="Gi-14327897"
/db_xref="Gi-14327897"
/translation="MELPDLITDLFRRHRGRTALRTAGRTWTYEELDRVTSALARRID
AECPACRRVLVAGEHTALSAVVAALAAMRSHAVHTPMNPGLPADRFEEFARVADAALLV
CFEREALVRGEKAGLRALYAGDVGWPTDPAPAPADGTADSBARSRVAYSIFTSGSTGD
PKLUVYGHGGLLMCRSLERLLDITPDDQVLHFRASLSTDASVSEELTGTLYAGATLVVP
VRDQASWLGSVSRHLAAHGCDLAMLSPSVYARLDEAARSRIRVEFCGEALGEGEYDK
AARYSRVFNAYGETEATVCFSLAELTSYTPSIGTPVDGFRAYVEDDDSGOHATAGTGE
LVIVGDQVALGYAGGSPAENEVGGTVDSSPAXATGDVVSLSDDGELTVLGRIDEQIKR
LGHRVNLAHVGSTLSRHLGREVALVRQDATILLTTAADGEATEESLMARRRDLVPVWE
APDRLVVLDALPLTSGGKVDRSALRELLASPACAPHGGTDGEDAAELRRVLDVTPAVL
GQEIGPETSIFDAGGSSLAMIQIQVKLDAYGEBLYEAAFAAMDCPAPAFLRHLRG
EAVAPASAGVUTLARVETERDALRAELPLLRRDTRHEPVFGAADGAREVLLTGASGF
IGGHVLDRLLAAGRPVLLVVSTGDPDGVLTGHATRFGRQAADXARVRAISYAELERWVD
RRRGPVVDAVVHCGYQVNHLLPLDSHLSGSVRNTALVVEAAPAALGARSFAFLSAASAG
ADDFLPLSAAGILTAVGDPYSRSKLISEETVNTLAVGGEVPAPLAGARSFAFLSAASAG
ADDFLPLSAAGILTAVGDPYSRSKLISEETVNTLAVLGGVAYHYRGLVYGHRPEDBHHL
KDDWFTALLETARRVGAMPRLSGHVPVCDVGTLADTLLGRDANGALSGFGW
DSAHEBVYDLOTLATTGGLTDBAVLAPAMFERVRDGGEVPAPLLAAMQAALGGRSTPDSR
SANVVURRTYALDELLHTGGLTEADVLAPAMFERVRDGGEVPAPLLAAMQAALGGRSTEDB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Region: 3339. 3986
/note="Region: 64089. 4100
/note="Region: 64089. 4100
/note="Region: 64350. 4350. 4370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Region:
5343. .5375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Region: 5043. .5075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Region: adenylation domain A1"
3708. .3746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PSAHREVDHDILGRLLGTPPDTPAGDRPERTGTTSRGPERRRPRADTALTGTEP"
3576. .3596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Region:
4893. .4910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Region:
4833. .4853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Region:
4647. .4706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Region:
4593. .4610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Region:
4494. .4538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Region: NADH binding site"
                                                                                                                                                                                                                                                                                                                                                                                                          95.0%;
                            312
                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                             Score 296.4; DB Pred. No. 2e-31; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           thiolation domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           domain A3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          domain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A5 "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A4 "
                                                                                                                                                                                                                                                                                                                                                                                                                           Length 14159;
                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                           4;
                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                            11381
                                                                                                                                                                                            11321
                                                                                                                                                                                                                                                             11261
                                                                                                                                                                                                                             176
                                                                                                                                                                                                                                                                                             116
                                                              11441
                                                                                             296
                                                                                                                                                            236
                                                                                                                                                                                                                                                                                                                              11201
                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                          RESULT 6
AR198355
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT
A48325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                         FEATURES
                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local S
Matches 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       G
                                                                                                                                                                                                                                                                                                                                             299
                                                                                                                                                                                                                                                                                                                                                                            254
                                                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                                                                            194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           183;
                                                                                                                                                         Unknown
```

Ś

밁 Ş 맑 S

밁 Ş g Ś 밁 Ş 밁

```
119 TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14 ACGAGCTGCAGCGCCGCGCGCGCGCCTCGACGCCTCGACGGGACGCTCCTGGACACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
A48325
                                                                                      1 (bases 1 to 387)
Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, F., Crouzet, J., Barriere, J.-C., Debussche, L., Famechon, A., Paris, J.-M. and Dutruc-Rosset, G.
                                                      Streptogramins for preparing Patent: US 6352839-A 4 05-MAI
                                                                                                                                                                                                                                                                Sequence 4 from AR198355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dutruc-Rosset,G.
STREPTOGRAMINES AND METHOD FOR PREPARING Patent: WO 9601901-A 3 25-JAN-1996;
RHONE POULENC RORER SA (FR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 387)
Blanc, V., Thibaut, D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                      Unclassified.
                                                                                                                                                                                                           Unknown.
                                                                                                                                                                                                                                                 AR198355.1
                                                                                                                                                                                                                                                                                                       AR198355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Barriere,J., Debussche,L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomycineae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A48325.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGCGTCGAGGACCTGGTGAT 275
                                                                                                                                                                                                                                                                                                                                                                                                    GCCGCCTCGAGGACGAGTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGATGATGCAGCCCGGCCGGCTCAGCCTGGTCAAGGACAGGGCCGCCGCCGCCGCTACGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGCGGCGCCGCATCGACCTCGGTGTCCGCGATCGCGCGGTACAAGTCCCCGGCACGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCCCCTCGACGCGCTGCGCGCCCGGCCTGGACGCCGGCGGACGCCCTGCTGGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 publication AU 2891295 960209
publication FR 2722210 960112
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W
                     Location/Qualifiers
1. .387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Streptomyces pristinaespiralis"
/mol_type="unassigned DNA"
/db_xref="taxon:38300"
organism="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GI:2302118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     387 bp
from Patent W09601901
                                                                                                                                                                                                                                                 GI:20248204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  43.5%;
                                                                                                                                                                                                                                                                                  patent US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 135.6; DB 6
Pred. No. 2.5e-09;
0; Mismatches 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bamas-Jacques,N.,
e,L., Famechon,A.,
                                                                                                                                                                                                                                                                                    6352839
                                                                      same by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA
                                                                        mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>,</u>6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Blanche, F., Paris, J. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SAME BY MUTASYNTHESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       387;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PAT
                                                                                                                                                                                                                                                                                                       PAT 20-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73
```

```
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
A48323
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                      δ
                                                              밁
                                                                                                 Ś
                                                                                                                                         밁
                                                                                                                                                                        δ.
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          及
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Sim Matches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                      1931
                                                                                                                                         1991
                                                              2051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            179
                          194
                                                                                                   134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119
                                                                                                                                                                                                                                                           14
                                                                                                                                                                                74
                                                                                                                                                                                                                                                                                                183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2888 bp
Sequence 1 from Patent WO9601901.
A48323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Streptomycineae; Streptomycetaceae; Streptomyces.
1 (bases 1 to 2888)
Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomyces pristinaespiralis
Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dutruc-Rosset,G.
STREPTOGRAMINES AND METHOD FOR PREPARING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Barriere, J., Debussche, L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patent: WO 9601901-A 1 25-JAN-1996; RHONE POULENC RORER SA (FR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A48323.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGCGTCGAGGACCTGGTGAT 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGAGAGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aceaecrecaecrecececeaecrecaecrecaecrecaececeaececrecreeaecece
                                                              CGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGCCCGCCGCCTACGCCGCCG 193
                                                                                                                                         TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC
                                                                                                                                                                              TGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGTACAAGTCCCCGGCACGGCGTCC 133
                                                                                                                                                                                                                  ACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCTCGACGGGACGCTCCTGGACACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGCCTCGAGGACGAGTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          recescececarceacereses receses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACGATCATCACCGAGACCT
                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            publication AU 2891295 960209 publication FR 2722210 960112
                                                                                                                                                                                                                                                                                                                                                                                               /organism="Streptomyces pristinaespiralis"
/mol_type="unassigned DNA"
/db_xref="taxon;38300"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /mol_type="unassigned DNA"
                                                                                                                                                                                                                                                                                                                  43.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          .2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 135.6; DB 6;
Pred. No. 2.5e-09;
0; Mismatches 79;
                                                                                                                                                                                                                                                                                                                  Score 135.6;
Pred. No. 1.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    320
                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Famechon, A.,
                                                                                                                                                                                                                                                                                         1.5e-09;
79;
                                                                                                                                                                                                                                                                                                                                  DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Paris,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Blanche, F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SAME BY MUTASYNTHESIS
                                                                                                                                                                                                                                                                                                                                    Length 2888;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Crouzet, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PAT
                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-MAR-1997
                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                         2050
                                                                                                                                                                                                                      1990
                                                            2110
                                                                                                                                                                                                                                                         73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                  RESULT 9
SPU60417
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 8
AR198353
                                                                                                                                                                                              ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                   뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FOCUS
                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                          TITLE
                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2171
                                                                                                                                                                                                                                                                                                                                                                                                                   2171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2111
                                                                                                                                                                                                                                                                                                                                                                                                                                                      254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
AR198353
                                                                             Streptomycineae; Streptomycetaceae; 1 (bases 1 to 4740)
Blanc, V., Gil, P., Bamas-Jacques, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptogramins for preparing same b Patent: US 6352839-A 1 05-MAR-2002; Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 2888)
Blanc, V., Thibaut, D.,
                                                                                                                                                                                                                      U60417.1
                                                                                                                                                                                                                                     U60417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Barriere, J.-C., Debussche, L., Dutruc-Rosset, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AR198353.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AR198353
                                          Thibaut,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unclassified.
                                                          Schleuniger,J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGCCTCGAGGACGAGTGGAT 2192
                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGCCTCGAGGACGAGTGGAT 2192
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCGTCGAGGACCTGGTGAT 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCGTCGAGGACCTGGTGAT 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              μ
                                                                                                                                                                                                                      GI:1575335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="unknown"
/mol_type="unassigned
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:20248202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2888 bp
patent US 6352839.
                                                            Bisch, D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 135.6;
Pred. No. 1.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
```

```
Streptomyces pristinaespiralis
Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                          SPU60417
Streptomyces pristinaespiralis 4-dimethyl precursor biosynthesis (papA, papC, papB,
Identification and analysis of genes from Streptomyces pristinaespiralis encoding enzymes involved in the biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGATGATGCAGCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCGCTACGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCCCCTCGACGCGCGCGCGCCGCCTGGACGCCGCGGACGCCGCCTGCTGGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGAGCTGCAGCGGCTGCGCGGAGCTCGACGCCCTCGACGGGACGCTCCTGGACACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGGTACAAGTCCCGGCACGGCGTCC 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCT 2170
                                                                  Bamas-Jacques, N., Lorenzon, S., Zaisch, D., Blanche, F., Debussche, L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bamas-Jacques, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Famechon, A.,
                                                                                                                                                                                                                                                                                                              4-dimethylamino-L-phenylalanine papC, papB, papM) genes, complet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .5e-09
                                                                                                                                       Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Blanche, F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 anche,F., Crouzet,J.,
Paris,J.-M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                         Zagorec,M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2888;
                                                                                                                                                                                                                                                                                                                                                          BCT 07-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                         Ì.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1990
         of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PUBMED
                                                                          gene
                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                           SGS
                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the 4-dim
Mol. Micr
97197164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (11-JUN-1996) Recherche Rorer. 13 quai Jules Guesde, B. P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Blanc, V., Gil, P., Bamas-Jacques, N., Lorenzon, S., Schleuniger, J., Bisch, D., Blanche, F., Debussche, L., Crouzet, J. and Thibaut, D. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9044253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 4740)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4-dimethylamino-L-phenylalanine precursor of pristinamycin I . Microbiol. 23 (2), 191-202 (1997)
                                                                                        /codon_start=1
/transI_table=11
/producE="pagB"
/protein_id="AAC44868.1"
/gbotein_id="AAC44868.1"
/db_xref="GI:1575388"
/tanslation="MTPPAIPAAPATGPAAATDPLDALRARLDAADAALLDAVRTRL
DICLRIGEYKRLHQVPMMQPHRIAQVHANAARYAADHGIDPAFLRTLYDTIITETCRL
EDEWIASGGAPVPTPVHASASARGAVS"
                                                                                                                                                                                                                                                                                                                                                          /translation="mrggsvfgrcvvvggagavgrmfshwlvrsgvavtwldvagaga addvrrvagdvarpgavladtl addvrrvagdvarpgavladtl svrvardvagdvarpgavladtl svrvardagdvarpgperavvgladtlagvkralagdvarpgperalvelvagw svrsriagrlæapegloavglupmfapslglogrevaavvvtdgpgvralvelvagw garvvæmparrhedeltravogarphavlafglolgelsvdvgalrdsapephlavlad garvæmparrhedeltravogarphavlaflaglagdvergdeetfaalfaelrgv lariaggtpevyfdioaanpgappaaroalgrglvrlgoavergdeetfaalfaelrgv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATAPAAERWLTDAARTLATTAPRPPFTILLPDDQLPALDVHYRHSLPRYRELVEECRRL
ITDGETYEVCLINMLRVPGRIDPLTAYRALRTYSPAPYAAYLQFPGATYLSSSPERFL
RIGADGWAESKPIKGTRPRGAEPAQDAAVKASLAAAEKDRSEILMIVDLYRNDLGQVC
DIGSVHVPGLEEVETYATVHQLVSTYBGRLAADVSRPPAVRAAPPGGSMTGAPKVRTM
QFIDRLEKGPRGVYSGALGYFALSGAADLSIVIRTIVATEEAATIGVGGAVVALSDPD
DEVREMLLKAQTTLAALRQAHAGATASDRELLAGSLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="mrtvrtllidnydsftynlfqmlaevngaaplvvrnddtrtwqa
Lapgdfdnvvvspgpghpatdtdlglsrrvitewdlpllgvclghqalcllagaavvh
Apepphgrtsdirhdgqglfanipspltvvryhsltvrqlpadlratahtadgqlmav
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (2486. .3376)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (2486. .3376)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:38300"
68. .2227
                                       /gene="papM"
3799. .4677
                                                                                                                                                                                                                                                                                    /gene="papB"
3413. .3802
                                                                                                                                                                                                                                                                                                                                            LGEHGAELERLCARMFTALH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="PapC"
/protein_id="AAC44867.1"
/db_xref="GI:1575337"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="papC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAC44866.1"
/db_xref="GI:1575336"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
/product="PapA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="papA"
/function="p-aminobenzoate
/gene="papM"
/function="N-methylase"
                                                                                                                                                                                                                                              /gene="papB"
/function="mutase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="papC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  function="dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     organism="Streptomyces"
mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .2227
                                                                                                                                                                                                                                                                                  .3802
                                                                                                                                                                                                                                                                                                                       .3802
                                                                              .4677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pristinaespiralis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pharmaceutique,
. 14, Vitry sur!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       synthase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seine cedex 94403,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rhone-Poulenc
                                                                                                                                                                                                       JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEGMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 10
AF263011S2/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pocus
                                                                                                                                                                                                                                                                                                                                                          AUTHORS
TITLE
                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                 gene
                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ĀF263012
AF263012.1
                                                                                                                                                                                                                                                                                                                     Streptomycanor, (bases 1 to 10029)

1 (bases 1 to 10029)

Smith, W.C., Xiang, L. and Shen, B.

Genetic localization and molecular characterization of the nons

Genetic localization and molecular characterization of the nons
                                                                                                                                              Submitted (02-MAY-2000) Chemistry, Davis, One Shields Ave., Davis, CA Location/Qualifiers
                                                                                                                                                                                                                         2 (bases 1 to 10029)
Smith, W.C., Xiang, L. and Shen, B.
                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomyces griseus subsp. griseus
Streptomyces griseus subsp. griseus
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Streptomyces griseus subsp. griseus gene cluster, downstream region.
                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                    20316791
                                                                                                                                                                                                                                                                                                                                                                                                               Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                   Antimicrob.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AF263011S2
                                                                                                                                                                                                                                                                10858335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGCCTCGAGGACGAGTGGAT 3732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGCGTCGAGGACCTGGTGAT 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                 /sub_species="griseus"
/db_xref="taxon:67263"
205. .990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl table=11
/product="PapM"
/protein_id="AAC44869.1"
/db_xref="GI:1575339"
/gene="nonH"
                                                                        /mol_type="genomic
/strain="DSM40695"
                                                                                        organism="Streptomyces/mol type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DGCLTAVRNHTCAPPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:8896099
                                                                                                                                                                                                                                                                                                   Agents Chemother. 44 (7), 1809-1817 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ğ
                                                                                                         griseus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                  University
95616, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA linear BCT 07-JUL-
macrotetrolide biosynthesis
```

BCT 07-JUL-2000

subsp. griseus"

of

California

```
AGEEGLGMIRAMERTAARLLAPGGVLLLEHGSYQLASVPALFRATGRWSHASSRPTCN
```

ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCT ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGT TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC TGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGGGTACAAGTCCCGGCACGGCGTCC ACCCCCTCGACGCGCGCGCCCGCCTGGACGCCGGACGCCGCCCTGCTGGACGCCG ACGAGCTGCAGCGGCTGCGCGCGGAGCTCCAACGCCCTCGACGGGACGCTCCTGGACACGG /tränslation="MTAAAPTLAQALDEATGQLTGAGITADAARADTRILAAHACQVA FGDLDTCLAGPVPPRFMYVRRRLTREPAERIVGHAYEMGHRFDLAFGVPVPKPETEE FGDLDTCLAGPVPRFMYVRRRLTREPAERIVGHAYEMGHRFDLAFGVPVPKPETEE ITRDAIARLEALVRRGTTAFLVVDLCAGPGTMAVTLARHVPAARVLGIELSQAAARA RRNARGTGARIVQGDARDAFPELSGTVDLVVTNPPYIPIGLRTSAPEVLEHDPPLALM Score 135.6; DB 1 Pred. No. 1.3e-09; 0; Mismatches 79 DB 1; 79; Indels Length 4740; <u>.</u> Gaps 3710 253 3650 193 3590 133 3530 73 0

```
Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SdC
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="msdgtpp1pgpagpregivaggahgpgrlralta1vldaledaa parggplpagpervalstlarcapvlpeegvgpagalgdvvayaggahgpadpacv ahthceptavavaaggahgaandsmosmogapaagvregittyaalarliptyapapacv ahthceptavavaaglabalaversmosmogapaagvregittyaalarliptyapapap litsggtesnivalllareravpgtlrvvtganahhsvhrammigipapavvacrog ridsgatabalasladarlhvdaavgg ridspaldalasladarlhvdaavgg ridspaldalasladarlhvdaavgg ridsgridslaplalasladarlhvdaavgg pllfeerivadagmlaplslradylna dddteaglebilggsistigskavavtsralggradagvlavavgrthlaggravbtragglarrhggligstylfregravbtragglarrhggligstylfregravbtragglarrhggligstylfregravabagglarrhggligstylfregravbtragglarrhggligstylfregravbtragglarrhggligstylfregravbtragglarrhggligstylfregravbtragglarrhggligstylfregravbtragglarrhggligstylfregravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtraggravbtragg
                               /product="unknown"
/product="unknown"
/protein id="AAF81244.1"
/db_xref="GI:8896116"
/translation="MRRVTCHEVGAQRLDEALSGIGGRIMGRWHGMRYDDASPERLRE
/translation="MRRVTCHEVGAQRLDEALSGIGGRIMGRWHGMRYDDASPERLRE
TADELLDHVAARVAADALLDDVARSALRTAAECHLGEMSVGCFPDGDQELHFPLIGET
TISEDIAFGDVVRFGGGQAPSAGTWIDAFAVSLVSGIJWDMQRVIGLLIRNDYAPAIH
DGVPYSKLDSASDFTDLAAMDALCPYLAEAEGHQPRHWFTVPLRRPDADELALAAAKL
DASGALTPDQRILRVULDDDQAAFEBALASRLYGHRASVGPDPAPRTLIPLHALALAA
LAVQHGWELGLRSGYLPPELLGTPDALRRAGESRTNNLGGWYAK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (5438. .6403)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SVFVQNAERHTHGVGTPDLGLAAWRSAVIVNTLTGKEFYPLPERTAFTTFGLGARDRD DRDTASRPAEERR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALGYGTAPHYPEPLRELVQDPAAAVLHSADYLSQRNRLLAARHITVVGSGQSGAEVLL
DLLRSRPEGAEGLTWLARTPAFAPMEYSKIGLEGTPDYTRYFHGLPQATRDRLLPRQ
WQLYKGVSGDTLGDIHDELYRRSLGGGWPDVTLTPGIEVTGAAVTEAGRIELGVFHGG
QEARGRLYTDAVVLATGYRERPVDLLLAALDFYIVRDETGRPQVDAAQRLVLAPEIAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="mtpgprtppldllgygagpenlslaaladgypglrtafhegraa
fhwhpglliegatlgypfladlyslyeptspwsylnylkirrrlppfyfaehfhihrt
efdnylrwystelpatrfghrydtyawdpggdafaveftrlgpdgetlttgltharnl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (2090. .3481)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 / tränelation="Maevluludhydgavrkotlelltlarrygdpyavvlgagagda

Apvllebhgavkvltsdapefadylvvprydalgafayevavlvyssaegkelaara

Lalrygsgiitdatdleagdogvvatoaafaasfatksrysrgvpvitykpusapvep

Apaagavealfysgegaatgtkytsrtprestgrpelleaaivysggrgyngaenfpl

Lealadavealfysgegaatgtkytsrtprestgrpelleaaivysggrgyngaenfpl

Lealadaveasbaavbagwyphtsgygggtgkstytasgisgaighragmo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1051.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VLAKAVEKAGYDLVICGMASTDGVMGVLPALLAERLGVPQVTLLSEVAVDGGVVTGRR
DGDTASEQLEASLPAVVSVTDQSGEARYPSFKGIMAAKKKPVESLDLDDLGLDADEVG
LAGAWTVVDSATERPARTAGTIVKDEGEGGRQLAGFLAGQKFI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APGAEDTDAPAAERLSP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GDGRRRLWLKATLLHPDAAAAELLPLLDLVTAAADRAATEAEADGVVTGADADRAATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="amino acid decarboxylase-like protein"
/protein_id="AAF81243.1"
/db_xref="GI:8896115"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="orf28"
/codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (3552. .5129)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TSKTIVAINKDAEAPIFELVDYGVVGDLFAVVPQLTEEINTRKG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="flavoprotein reductase"
/protein_id="AAF81241.1"
/db_xref="GI:8896113"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="mSLRIVVCVKYVPDATGDRRFADDLTLDREDVDGLLSELDEYAV
EQALQIADGADDAEITVVTVGPEDAKDALRKALSMGADKAVHVEDDDLHGSDVMGTSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /transT table=11
/product="flavoprotein reductase
/protein_id="AAF81240.1"
/db_xref="GI:8896112"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="orf26; similar to FixB"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="orf27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="orf29"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="similar to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="nonH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FixA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nonH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein"
```

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
ACCESSION
                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AE005068/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                               Snoor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4331 CGAC 4328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      64
Ng,W.V., Kennedy,S.P., Mahairas,G.G., Berquist,B., Pan,M., Shukla,H.D., Lasky,S.R., Baliga,N., Thorsson,V., Sbrogna,J., Swartzell,S., Weir,D., Hall,J., Dahl,T.A., Welti,R., Goo,Y.A., Leithauser,B., Keller,K., Cruz,R., Danson,M.J., Hough,D.W., Maddocks,D.G., Jablonski,P.E., Krebs,M.P., Angevine,C.M., Dale,H., Isenbarger,T.A., Peck,R.F., Pohlschrod,M., Spudich,J.L., Jung,K.-H., Alam,M., Freitas,T., Hou,S., Daniels,C.J., Dennis,P.P., Omer,A.D., Ebhardt,H., Lowe,T.M., Liang,P., Riley,M., Hood,L. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
                                                                                                                                                                                                                            Halobacterium sp. NRC-1
Halobacterium sp. NRC-1
Archaea; Euryarchaeota; Halobacteria; Halobacteriales;
Halobacteriaceae; Halobacterium.
                                                                                                                                                                                                                                                                                                                                                  Halobacterium sp. NRC-1
AE005068 AE004437
AE005068.1 GI:10581033
                                                                                                                                                                                                                                                                                                                                                                                                                          AE005068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACGAGGGGCGCATCGACCCGCTCCCGGAGATCGCCCGCGTCGCCGAGCGGCACGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCCTGACGGCCGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TACGCCGCCGACCACGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        င္ပဓဓင
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGCCCGCCCCGTGGTCGCCTGCCGCGACGGCCGGATCGACCCGGCCGCCCTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCGAGTCCAACCTGGTCGCCTGCTGCTCGCCCGGGAACGAGCCGTCCCCCGGCACCCTC
                                                                                                                                                                                                  (bases 1 to 13635)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ETAAELRRGTWQQLAEAGVHDVPTGDFSYYDHVLDTSVWVGAVPGRHRAAVDADALDG
YFAMARGTQDVAPLEMTKWFDTNYHYLLVPELGFDTVFTADSAKQVAECARALALGHTP
RFVLVGFVTYYLLLAKFAFGVAADÉEPUTLLDRLLFVYAEVLADLLAAGAAWVQLDEPA
LVQDRTPAELMAARAY RELGGLADRRQLLVASYFGRLGEALTVTLAKAFVDGLALDFT
ESGAGNLDDLAAAGGLFGKELVAGVVNGRNI WINDYEKSLATILGTLGLADRVDVSAS
CSLLHVPLDADAERD ID PQI ARWLAFARQKTEE I VVLARGLTGGTDTI AAELAANRAD
LASRAGAALTRDPAVRARTAAVTDADGRRSQPYTESIAVCHARGLTGGTDTI AAELAANRAD
LASRAGAALTRDPAVRARTAAVTDADGRRSQPYTESIAVGARHIGLIPLLFTTTIGSFP
QTTELRTARADLRAGRI DEAGYEER I KDE I REVLSFQEKAGLDVLVHGEPERNDWQY
FAEQLTGYLATQHGWVQSYGTRYYR FPVLAGD I SR PEEMTVRWTTYAGSLTAR PVKGM
LTGFVTMLAMSFWDDOPLGDTARQVALALRDEVNDLEAASGTSVI QVDEFALRETILPL
RAAEHAAYLEWATESFRLATGGVR PDTQ I HTHMCYAEFGD I VQA I DDL DADVI SLEAA
RSHMQVARELAAHGY PREAGPGVY DI HIS PRI LE STEEAAAALLRKGLEAI FASRLWYNPD
RGISHWGVARELAAHGY PREAGPGVY DI HIS PRI LE STEEAAAALLRKGLEAI FASRLWYNPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="orf30"
/codom_start=1
/transI_table=11
/transI_table=11
/product="5-methyltetrahydropteroyltriglutamate-
/product="6" methyltransferase-11ke protein"
/protein_id="AAF81245.1"
/bb_xref="GI:8896117"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGLKTRGWPETRASLENLVAAARÈIRAELPTEAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    translation="MTAKPAAAAARATVYGYPRQGPNRELKKAIEGYWKGRVDAAALR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 64; DB 1; Length 10029; Pred. No. 5.1;
                                                                                                                                                                                                                                                                                                                                                                                                   13635 bp
1 section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                     of
                                                                                                                                                                                                                                                                                                                                                                                                   A linear
170 of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                     complete
                                                                                                                                                                                                                                                                                                                                                                                                                               BCT 12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                            Dennis, P.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

DasSarma,S

```
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                               SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2 (bases 1 to 13635)
Ng.W.V., Kennedy,S.P., Mahairas,G.G., Berguist,B., Pan,M.,
Shukla,H.D., Lasky,S.R., Baliga,N., Thorsson,V., Sbrogna,J.,
Swartzell,S., Weir,D., Hall,J., Dahl,T.A., Welti,R., Goo,Y.A.,
Leithauser,B., Keller,K., Cruz,R., Danson,M.J., Hough,D.W.,
Maddocks,D.G., Jablonski,P.E., Krebs,M.P., Angevine,C.M., Dale,H.,
Isenbarger,T.A., Peck,R.F., Pohlschrod,M., Spudich,J.L.,
Jung,K.-H., Alam,M., Freitas,T., Hou,S., Daniels,C.J., Dennis,P.P.,
Omer,A.D., Ebhardt,H., Lowe,T.M., Liang,P., Riley,M., Hood,L. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (14-JUL-2000) Institute for Systems Biology, 4225 Roosevelt Way NE, Seattle, WA 98105, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DasSarma,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genome sequence of Halobacterium species NRC-1
Proc. Natl. Acad. Sci. U.S.A. 97 (22), 12176-12181 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20504483
                                                                                                                                                                                               /transT_table=11
/product="Vng1546h"
/protein_id="Ang19831.1"
/protein_id="Ang19831.1"
/db_xref="c1:10581035"
/translation="MTLTLYALDGCPDCESVIDTLAADDIDHETVHVDARHSARNAVK
RASGQRSVPULVDDDRGVVMADSQRIQTYAAVTLA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (1776. .2588)
/gene="VNG1548C"
complement (1776. .2588)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transT_table=11
/product="Vng1547c"
/protein_id="Aag19830.1"
/protein_id="Aag19830.1"
/db_xref="Ci:10581034"
/translation="MDRVSKASPRIEAYGTVDELNAAVGAIRPTDIADLDAWLREAQN
/translation="MDRVSKASPRIEAYGTVDELNAAVGAIRPTDIADLDAWLREAQN
HLHVVQADFANPEPEPDDPQITAEHVTHVEKWIDHCEARLDPLESFILPGGSEAGAAL
HQARAVCRRAERRAVALQDHEPDDAVNDTAVAYLNRLSDALFVFARLANDVAGVHEES
                                                                                                           /gene="cbiT"
/note="synonym:
2727. .3290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (681.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="VNG1546H"
/product="cobalamin biosynthesis"
                      /codon_start=1
/transl_table=
                                                                                      /gene="cbiT"
                                                                                                                                                                                                                                                                                                                                                   /gene="VNG1548C"
/note="conserved hypothetical protein"
/codon_start=1
/transI_table=11
/product="Vng1548C"
/product="Vng1548C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(681, .920)
/gene="VNG1546H"
/note="hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement(142. .633)
/gene="VNG1547C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (142. .633)
/gene="VNG1547C"
                                                                                                                                                                                                                                                                                                            /protein_id="AAG19832.1"
/db_xref="GI:10581036"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /mol_type="genomic DNA"
/strain="NRC-1"
                                                                    note="CbiT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               note="conserved hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             organism="Halobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .. .13635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        xref="taxon:64091"
                      _table=11
                                                                                                                                    VNG1550G"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dennis, P.P., lood, L. and
                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
```

```
3984. .4850

/gene="bbir"

/note="synonym: VNG1553G"

3984. .4850

/gene="cbir"

/note="Cbir"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="synonym:
4847. .5824
/gene="cbig"
/codon_start=1
/transl_table=11
/product="cobalamin biosynthesis"
/product="cobalamin biosynthesis"
/product="cobalamin biosynthesis"
/product="cobalamin biosynthesis"
/product="cobalamin biosynthesis"
/product="cobalamin biosynthesis"
/product="cobalamin biosynthesis"
/product="cobalamin biosynthesis"
/product="cobalamin biosynthesis"
/translation="MSDANEAADYSTLYVVGIGPGLPGGMTQRAKDVVRTADCVVASN
/translation="MSDANEAADYSTLYVVGIGPGLPGGMTQRAKDVVRTADCVVASN
/translation="MSDANEAADYSTLYVVGIGPGLPGGMTQRAKDVRTADCVVASN
/translation="MSDANEAADYSTLYVVGIGPGLPGGMTQRAKDVRTADCVVASN
/translation="MSDANEAADYSTLYVVGIGPGLPGGMTQRAKDVRTADCVVASN
/translation="MSDANEAADYSTLYVGIGPGLPGGMTQRAKDVRTADCVVASN
/translation="MSDANEAADYSTLYVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGPGLPGGMTQRAKDVGIGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /GOGON STATT=1
/COGON STATT=1
/CYCHON STATT=1
/POGUCE-"COBALAMIN biosynthesis"
/producE-"Cobalamin biosynthesis"
/producE-"Cobalamin biosynthesis"
/producE-"GI:10581040"
/db_xref="GI:10581040"
/translation="MSTDNDTETDDSGGHCSTPDSDGEVAEDIAIVAFERKRDTAAEI
/TOBALTWAIPLTGGHHGANQVADDLASMGAVPAMTTASEAAGKQGVEERAKALDTHV
VNGDSTVATNIAVLDERNIGPVARLDGPQAVVVGDDVTVLKRNSDGVVLGTGSVSGAD
VNGDSTVATNIAVLDERNIGPVARLDGPQAVVVGDDVTVLKRNSDGVVLGTGSVSGAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="synonym: VNG1555G" 5821. .6651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EQQFRDAWAASLAATDYDIDDVEFVATGTRKADEEGLLAAAEALGLGVVAFEKETLEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GDWANRGSDTDQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MPEDATPQDAIDAASQQRQRGRDARVYDHTAGDTQAGIFFIGAG
PGDPGLLTVTGKELVEDADLVVHAĞSLVMSELLDEYYZDAETVSVGKDLEALIFUMR
DAHEDGDTVVRLHSGDPAIYQAALEQDMDALEQEGVPYYDVGSVFKADAATLR7QLT
LNGTANHVAFTREQGKTLDAEDDHIAEFVEMGDVTTCIYLGTHAIPDVMERLLADGHD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transT_table=11
/product="cobalamin biosynthesis"
/protein id="AAG19835.1"
/db_xref="GI:10581039"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
/transl_table=11
/product="cobalamin biosynthesis"
/protein_id="AAG19834.1"
/protein_id="AAG19834.1"
/db_xref="d1:10581038"
/translation="MTVYGVGLGPGEPDLLTLRGKRTLEAADVVYSPGRLSRTVATHH
/translation="MTVYGVGLGPGEPDLLTLRGKRTLEAADVVYSPGRLSRTVATHH
/translation="MTVYGVGLGPGEPDLLTLRGKRTLEAADVVYSPGRLSRTVATHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="cbiL"
/note="synonym: VNG1551G"
3287. .3991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /protein_id="AAG19833.1"
/db xref="G1:10581037"
/translation="MAQTQLEHDAKAGPTKPEVRAVVRSKLALTDDDHFVEVGSCTGA
VTIAAARDAGRVTALERKADRLETTRKNLAANGLADAVELRNAEAPAELPADADALFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HEGPTPSRSKELIGWPGIAEASAIAGGRDNELLAEKERYDEAVTVAVGK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PETPVTVVYHASWPDEDVIEGTIETIGDRVEDAGYRASALAVIGDAGAGAGYERSYLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RTILDAFHPDIDVQTVPGVSAVSAFTTALGVEVDAGAGLALREAAQGASPTGPDRMILF
KVTDAPATHEGLVDAGYDVTYGRRLYMEQGDTTVTRDPAEIADRDYYTLAYAERDTLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGSRNYDAVLDHAAETGVDRIVMNVSRLEVAGAATQAFRDRDILTEVVQFQVSHGYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="cbiG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KDRATAFDDTEVAGDA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGATS FDSENPVYMLVGSASGDTEADR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="cbiL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="CobH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="cobH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="CbiG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  note="CbiL"
```

```
VERSION
KEYWORDS
                                                                                                                                                                                                        RESULT 12
AK121213
                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                              뭥
                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                      ACCESSION
                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SdO
                                                                                                                                                                                                                                                                                    305
                                                                                                                                                                                                                                                                                                                       275
                                                                                                                                                                                                                                                                                                                                                                                                                                         425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                υ
5
AKI21213

AKI21213. GI:37990836

FLI CDNA; CAP trapper.

Oryza sativa (japonica cultivar-group)

Oryza sativa (japonica cultivar-group)

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Eukaryota; Magnoliophyta; Liliopsida; Poales; Poaceae;
                                                                                                                                                                   AK121213 1964 bp mRNA linear PLN 29-OCT-2003
Oryza sativa (japonica cultivar-group) cDNA clone:J023089K20, full
                                                                                                                                                                                                                                                                                  GGCGCGCGAGCGCCGCGCGCTCCAG
                                                                                                                                                                                                                                                                                                                       TGAGCCGGGAGAGCCTGACGGCCGAGGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                TCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGGCGTCGAGGACCTGGTGA 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCAGCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGCCGACCACGGCCTCGACGAATCGT 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGCGGACTTCGCGAACCCCGAGCCCGAGCCCGACGACCCACAGATCACCGCCGAACACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGACATCGCCGACCTCGACGCCTGGCTCCGGGAGGCACAGAACCACCTCCACGTCGTGC 486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGAGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCCCCATCGACCTCG
                                                                                                                                                                                                                                                                                                                                                             TCACCCACGTCGAGAAGTGGATCGACCACTGCGAGGCGCGCCTGGACCCCCTGGAGTCGT 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                    sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="cbiH"
/note="synonym: \
6651 .7658
/gene="cbiH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transI_table=11
/product="cobalamin biosynthesis"
/protein_id="AAG19838.1"
/protein_id="AAG19838.1"
/protein_id="AAG19838.1"
/db_xref="GI:10581042"
/translation="MSTDDTTTTDDSTSNCGASTTDTDDSTSSCGGSTTDTDDSASSC
GCASGSSDSSGCGASSDTDSNEQTVSATVDDPDADPGSLVAVGLGPGRPEGMTDRATA
ALADAEHIVGYTTYVDLLPDEITDDAEEIYDTPMCGEVSRTEEAVDRALAGNHVAIIG
SGDPNVYALAGLALEITESKAATPSMLDFEVVPGVPAAQSCGARLGAPLVNDSVSISL
SDHLTPMPEIESRLHAVASEEFTISIYNPWSRKRRENPOKACEILLARHRDADTPVGIV
SDHLTPMPEIESRLHAVASEEFTISIYNPWSTVDTUTGNAETYVFDDRMVTPRGYETKYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="Vng1558h"
/protein id="AAG19839.1"
/db_xref="GI:10581043"
/translation="MYRVTIOREACDGVFACLTRDSRFVEDDAGLATLDADDGTVERT
KETVVGEFDDDERVADAEDAAAACPFDAISVDAVEADE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="VNG1558H"
7658. .7906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7903. .8601
/gene="VNG1559H"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="VNG1559H"
7903. .8601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'note="hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="VNG1558H"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19.5%;
51.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches 132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 60.8;
Pred. No. 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                                                                         306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 13635;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94
                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
MEDLINE
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
```

```
Adachi, J., Aizawa, K., Akimura, T., Arakawa, T., Carninci, P., Doi, K., Fujimura, T., Fukuda, S., Hanagaki, T., Hara, A., Hashizume, W., Fujimura, T., Hayashizaki, Y., Hayastau, N., Hiramoto, K., Hiraoka, T., Horti, F., Hotta, I., Iida, J., Iida, Y., Ikeda, R., Imamura, K., Horti, F., Hotta, I., Iida, J., Iida, Y., Ikeda, R., Imamura, K., Kanagawa, S., Katoh, H., Kawagashira, N., Kawai, J., Kawamata, M., Kanagawa, S., Katoh, H., Kawagashira, N., Kawai, J., Kawamata, M., Kikuchi, S., Kishikawa-Hirozane, T., Kishimoto, N., Xobayashi, M., Koya, S., Kurihara, C., Kurosaki, T., Kusumegi, T., Li, C., Lu, M., Koya, S., Kurihara, C., Kurosaki, T., Kusumegi, T., Li, C., Lu, M., Masuda, H., Matsubara, K., Murata, M., Nagata, T., Mikura, J., Miyazaki, A., Mizuno, K., Murakami, K., Murata, M., Nagata, T., Nakahama, Y., Nakamura, M., Numasaki, R., Ohno, M., Ohtsuki, K., Oka, M., Oka, H., Osato, N., Ota, Y., Otomo, Y., Ryu, R., Saitoh, H., Sakai, C., Sakai, K., Sakazume, N., Sano, H., Sasaki, D., Sato, K., Satoh, K., Shibata, X., Shinagawa, A., Shiraki, T., Shishiki, T., Sogabe, Y., Tagami, Takeda, Y., Tagawa, A., Takahashi, F., Takaku-Akahira, S., Yokomizo, S. and Yoshimura, A., Yamamoto, M., Yasunishi, A., Yazaki, J., Yokomizo, S. and Yoshimura, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The Rice Full-Length cDNA Consortium, National Institute of Agrobiological Sciences Rice Full-Length cDNA Project Team:, Kikuchi, S., Satoh, K., Nagata, T., Kawagashira, N., Doi, K., Kikuchi, S., Satoh, K., Nagata, T., Kawagashira, N., Doi, K., Kikuchi, S., Satoh, K., Nagata, T., Kawagashira, N., Doi, K., Li, C., Kishimoto, N., Yazaki, J., Ishikawa, M., Yamada, H., Ooka, H., Hotta, I., Kojima, K., Namiki, T., Ohneda, E., Yahagi, W., Suzuki, K., Li, C., Ohtsuki, K., Shishiki, T., Foundation of Advancement of International Science Genome Sequencing & Analysis Group:, Otomo, Y., Murakami, K., Iida, Y., Sugano, S., Fujimura, T., Suzuki, Y., Tsunoda, Y., Murakami, K., Iida, Y., Sugano, S., Fujimura, T., Suzuki, Y., Tsunoda, Y., Kurosaki, T., Kodama, T., Masuda, H., Kobayashi, M., Xie, Q., Lu, M., Narikawa, R., Sugiyama, A., Mizuno, K., Yokomizo, S., Niikura, J., Ikeda, R., Sugiyama, A., Mizuno, K., Yoshimura, A., Miura, J., Kawai, J., Carninci, P., Adachi, J., Matsubara, K., RIKEN:, Kawai, J., Carninci, P., Adachi, J., Aizawa, K., Arakawa, T., Fukuda, S., Kagawa, I., Kondo, S., Konno, H., Miyazaki, A., Osato, N., Ota, Y., Yoshino, M. and Hayashizaki, Y.
URL: http://cdna01.dna.affrc.go.jp/cDNA/
NIAS Rice Full-Length cDNA Project Team: Kikuchi,S., Satoh,K.,
Nagata,T., Kawagashira,N., Doi,K., Kishimoto,N., Yazaki,J.,
Ishikawa,M., Yamada,H., Ooka,H., Hotta,I., Kojima,K., Namiki,T.,
Ohneda,E., Yahagi,W., Suzuki,K., Li,C., Ohtsuki,K., Shishiki,T.,
Ohneda,E., Yahagi,W., Suzuki,K., Li,C., Ohtsuki,K., Shishiki,T.,
Yamamoto,M. and Nakahama,Y., Li,C., Ohtsuki,K., Shishiki,T.,
Yamamoto,M. and Nakahama,Y., Li,C., Ohtsuki,K., Shishiki,T.,
Yamamoto,M., Ida,Y., Fujimura,T., Ikeda,R., Ishibiki,J., Kawamata,M.,
Kobayashi,M., Kodama,T., Kurosaki,T., Kusumegi,T., Lu,M.,
Kobayashi,M., Kodama,T., Kurosaki,T., Kusumegi,T., Lu,M.,
Masuda,H., Miura,J., Mizuno,K., Narikawa,R., Nikura,J., Oka,M.,
Nie,Q., Yokomizo,S., Yoshimura,A., Matsubara,K. and Murakami,K.
Genome Exploration Research Group in Riken Genomic Sciences Center
and Genome Science Laboratory in Riken: Adachi,J., Aizawa,K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (31-JAN-2003) Shoshi Kikuchi, National Institute of Submitted (31-JAN-2003) Shoshi Kikuchi, National Institute of Agrobiological Sciences, Department of Molecular Genetics, Hes Laboratory of Gene Expression; 2-1-2 Kannondai, Tsukuba, Ibara 305-8602, Japan (B-mail:skikuchi@nias.affrc.go.jp, Tel:81-29-838-7007)
Tel:81-29-838-7007, Fax:81-29-838-7007)
This clone is one of the 32K full-length cDNA clones from japo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Collection, mapping, and annotation of 28K full-length cDNA clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Collection, mapping, and annotation of over 28,000 cDNA clones from japonica rice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kikuchi, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Science 301 (5631), 376-379 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ehrhartoideae; Oryzeae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from japonica rice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2869764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (bases 1 to 1964)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tsukuba, Ibaraki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                from japonica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Head
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of.
```

```
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
AE005050/c
                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POCUS
                                                            JOURNAL
MEDLINE
                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Akimura, T., Arakawa, T., Carninci, P., Fukuda, S., Hanagaki, T., Hara, A., Hashizume, W., Hayashida, K., Hayatsu, N., Hiramoto, K., Hiraoka, T., Hori, F., Iida, J., Imamura, K., Imotani, K., Ishii, Y., Itoh, M., Kagawa, I., Kanagawa, S., Katoh, H., Kawai, J., Kishikawa-Hirozane, T., Kojima, Y., Kondo, S., Konno, H., Kouda, M., Koya, S., Kurihara, C., Matsuyama, T., Miyazaki, A., Murata, M., Nahi, K., Nomura, K., Numasaki, R., Ohno, M., Osato, N., Ota, Y., Saitoh, H., Sakai, C., Sakai, K., Shibata, K., Sakazume, N., Sano, H., Sasaki, D., Sato, K., Shibata, K., Shinagawa, A., Shiraki, T., Sogabe, Y., Tagami, M., Tagami-Takeda, Y., Tagawa, A., Takahashi, F., Takaku-Akahira, S., Tanaka, T., Tomaru, A., Toya, T., Waki, K., Yasunishi, A. and Hayashizaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    76
                                                                                                                                                               Ng,W.V., Kennedy,S.P., Mahairas,G.G., Berquist,B., Pan,M.,
Shukla,H.D., Lasky,S.R., Baliga,N., Thorsson,V., Sbrogna,J.,
Swartzell,S., Weir,D., Hall,J., Dahl,T.A., Welti,R., Goo,Y.A.,
Leithauser,B., Keller,K., Cruz,R., Danson,M.J., Hough,D.W.,
Maddocks,D.G., Jablonski,P.E., Krebs,M.P., Angevine,C.M., Dale,H.,
Isenbarger,T.A., Peck,R.F., Pohlschrod,M., Spudich,J.L.,
Jung,K.-H., Alam,M., Freitas,T., Hou,S., Daniels,C.J., Dennis,P.P.
Omer,A.D., Ebhardt,H., Lowe,T.M., Liang,P., Riley,M., Hood,L. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Halobacterium sp. NRC-1
Halobacterium sp. NRC-1
Archaea; Euryarchaeota; Halobacteria; Halobacteriales;
                                                                              Genome sequence of Halobacterium species NRC-1
Proc. Natl. Acad. Sci. U.S.A. 97 (22), 12176-12181 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Halobacterium
AE005050 AE004
                                                                                                                                                                                                                                                                                                                                                                                                                                          Halobacteriaceae; Halobacterium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Halobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AE005050.1 GI:10580768
                                    11016950
                                                               20504483
                                                                                                                                                   DasSarma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCGTGGTGAAGGAGGTGAAGCCGAGGGAGATCGAGCTGAGCGAACGGGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCG 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCGGGCTGCGCCACGCACGGACCACCTCTCCCAAGTACGGCGTGAACCTGGTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTCAAGGACTACGTCAAGGTCACCCTCATCGAGGCCAACGAGATCCTCCTCCTTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGTTCAGCGGCGAGCTCAGCGACTTCATCACCCGCGACGTGCGGGAGAGGGTACGCTCAC 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGTACAAGTCCCGGCACGGCGTCCCG 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCTGCAGCGGCTGCGCGCGCGCACCCCTCGACGGGACGCTCCTGGACACGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGGAAGAAGAAGCGCCTCCTGCACTGCGTCGTCGTCGGCGGGGTCCGACCGGGGTG
                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 16905)
         (bases 1 to 16905)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16905 bp DNA linear BCT 12-FEB-20 erium sp. NRC-1 section 81 of 170 of the complete genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Oryza sativa
/mol_type="mRNA"
/cultivar="Nipponbare"
/db_xref="taxon:39947"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="J023089K20"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .1964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 59.4; 1
Pred. No. 32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (japonica cultivar-group)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1964;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BCT 12-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                   Dennis, P.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Osato, N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                       Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ng,W.V., Kennedy,S.P., Mahairas,G.G., Berquist,B., Pan,M.,
Shukla,H.D., Lasky,S.R., Baliga,N., Thorsson,V., Sbrogna,J.,
Swartzell,S., Weir,D., Hall,J., Dahl,T.A., Welti,R., Goo,Y.A.,
Leithauser,B., Keller,K., Cruz,R., Danson,M.J., Hough,D.W.,
Maddocks,D.G., Jablonski,P.E., Krebs,M.P., Angevine,C.M., Dale,H.,
Isenbarger,T.A., Peck,R.F., Pohlschrod,M., Spudich,J.L.,
Jung,K.-H., Alam,M., Freitas,T., Hou,S., Daniels,C.J., Dennis,P.P.,
Omer,A.D., Ebhardt,H., Lowe,T.M., Liang,P., Riley,M., Hood,L. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (14-JUL-2000) Institute for Systems Biology, 4225 Roosevelt Way NE, Seattle, WA 98105, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DasSarma,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         / translation="mktherdicgavfaisvgamigsgifilpalalkmagpaviva
rtlagilvvpaalskeematampeaggtyiviergmeglegruyfsleerkal
alvggvpilvllfdlevpvalcharliivvlllgakgrigvtvivslmlgalgmev
agsaggvygavrogeriggmeglearliivvrysyagvxeevenderheden
agsaggvygavrogeriggmeglearliivvrsyagvaevendenheldi
LGSLafttlivvgivavmvgvtdsgavagsatpvavaadatlgtagvyaviaavlaliafvpi
vgtamagilsseryeramsgolapeptaeiihpreftettaittgavvlallafvpi
LDIAKLASAGDIVVVLALVAFRRGTTDVDDFEESPLYPMMGGFGVLSGLALVDATG
LDIAKLASAGDIVVTREASADRERALLSLAADRARNEGGATDVVVRRLGEDVDTGTEALVDATG
MGWVPIAGAAVITLGSVWYRVYARPROREGGATDVVVRRCDEVEDQAELDHAAD
AEAGGEEVLVALTREASADRERALLSLAADRARNEGGAVVVVRFDEVERDQAELDHAAD
AEAGGEEVLVALTREASADRERALLSLAADRARNEGGAVVVVRFDEVERDQAELDHAAD
AEAGGEEVLVALTREASADRERALLSLAADRARNEGGAVVVVRFDEVERDQAELDHAAD
                                                                                                         /product="stationary phase survival protein"
/protein id="AAG19603.1"
/protein id="AAG19603.1"
/db xref="G1:10580771"
/translation="MDADEPEILVTNDDGIDAPGIRALADGLDAVGNVTVVAPADNQS
/translation="MDADEPEILVTNDDGIDAPGIRALADGLDAVGNVTGVNEGGNLGMYVL
GRRGGTVSAAVEAAPFGVPALAVSMYNEEEQFGEPTAVADYEHAVDATTHLAHDAVTDG
GRRGGTVSAAVEAAPFGVPALAVSMYNEEEQFGEPTAVADYEHAVDATTHLAHDAVTD
IPDTADYLNVNAPHPDADATGEMVVTRPSHAYDMTAAQTGDTVTLYDRLWEAMAAGDI
                        complement (3614.
/gene="VNG1244C"
                                                                                    HDPDGTDRRAVLDGHVSVSPLTAPHSTEHHDALDGIATEF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2595.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VQSPADVRFEERTEGLSTEFDVDIAYGEVVSHDTKRAILNVAEQRSVDTVVAEHERLR
LRSRLLGDPIDWVVRHAPCDVLLVENRGYDAPQNVVLEGDGGPYDPATVAVADAVAGA
AGGTVTLQFPLSADHPDKRQETVHAYQDELAGLLSAPVRTADLRADGGDQTAPDLVVR
                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="synonym:
2595. .3371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGAHRRVRGGRGSHTQTAADCTELTVYPHESRQPGLLRRLAERLVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
/product='manino_acid_transporter"
/protein_id="AAG19602.1"
/db_xref="GI:10580770"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       333. .2519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="Vng1238c"
/protein_id="AAG19601.1"
/db_xref="GI;10580769"
/translation="MCVDDANSLLVAQLARSRLDPTHLIVHITTPSRAPAFERLDADI
                                                                                                                                                                                                                                                                                                                                                                                                      gene="surE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="surE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="VNG1238C"
125. .346
                                                                                                                                                                                                                                                                                                                  codon_start=1/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                           note="SurE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'gene="yhdG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Halobacterium
/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note="YhdG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="yhdG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  note="synonym: VNG1240G"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTPHALAAATVDSHPAPRASTHHSNENA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="conserved hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="VNG1238C"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   db_xref="taxon:64091"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    strain="NRC-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . .16905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   table=11
                                                      .3880)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sp. NRC-1"
```

밁 S 밁 Ş 밁 Ś 밁 S 밁 S

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                             gene
                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="ybhF"
/note="synonym: VI
complement(5405.
/gene="ybhF"
/note="YbhF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QLAGARTT"
4819. .5247
/gene="VNG1246H"
4819. .5247
/gene="VNG1246H"
/note="hypothetical p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transT_table=11
/product="vng1244c"
/protein_id="AAG19604.1"
/db_xref="GI:10580772"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
product="Vng1245c"
product="Vng1245c"
/product="Vng1245c"
/product="Mng1245c"
/db_xref="GI:10580773"
/translation="MngravrparagrulnalaTgvgaaralDIDTEASVSVTPSESGV
/translation="MngravrparagrulnalaTgvgaaralDIDTEASVSVTPSESGV
/translation="MngravrparagrulnalaTgvgaaralDIDTEASVSVTPSESGV
/translation="MngravrparagrulnalaTgvgaaralDIDTEASVSVTPSESGV
/translation="MngravrparagrulnalaAaglygramTvngLaf
rndavswhaavwTppEraysadaDvarcervsGlaeHvaalaAagDyGTamTvngLaf
rndavswhaavwTppEraysadaDvarcervsGlaeHvaalaAagDyGTamTvngLaf
                                                                   TDAPIAVAPRTAAVTGDDLRVARAAVTVFSDPVIYQSRADALTALGREQVYAVVSVPP ALADSARGAAAFTVYIDGSVVPYHEÞSRAIVRLLQSGLGTAIPRDVTVSREFVGTQYS LSTYLVPSFVVSLIFAIVALGYLPQTFEAEAAVLDRLRVETSLYAVVASKLLFFAALLV VPLVVFDAVTAVTGGSVSVLGVATLAVVVVMFLLLGLVAVAIQLLAGFGVMGRILINLL VLLFFVLGFSGVVYPVGFFSPARRMVVRQVPTHYAVVTIRGLVLRGQPISAYADMLGGL
                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="MITATDLTKTYGETTALAAVSVAMDEGLHCLAGPNGSGKTTLLR VLAGLTRHDSGSVTVPESLGVAFOTPNYYADLTVAENLDVFALAGATDEWRASLVDQ LRLDEVAGRTAGALSGGFQKKLDLALALLKRPDALLLDEPLADLDPATRRRLVDTVTR YSAEHTVVASTHHLDAFADDYATLTVVRDGRLLDSWDRPAAPNDPGSVYDRLLDRENG F"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MSARNDIAPSTLGVELAEGCVYVEYTDGREAFYNGVPEPIEGTL
HTNPGKDVHVLVTDPTETEGVLVYVNDLKTHDEILESTGVGRLLLDPGEREELFPGVT
VQADGYAIDIDADPETARGRVFVFAEDELSEYAYEIVGPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="VNG1245C" complement(3877. .4731)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="MTLDELRAEIESIDREIVDLIARRTYVAETIADVKAEQGLSTTD ESQEDAVMERAGENAAAFGVDDNLVKAVFRLLIELNKIEQRETR" complement (3877. .4731)
VAAVGVAALVAGGAIELYERRA"
complement(7138..8229)
/gene="VNG1250H"
                                                                                                                                                                                                                                                                                                                                                            /gene="VNG1249C" complement (6067. .7137)
                                                                                                                                                                                                                                                                                                                                                                                                             complement (6067.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transT_table=11
/product="ABC-type transport protein"
/protein_id="AAG19607.1"
/db_xref="GI:10580775"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAALDFPTAPAVTALPHAAGVSLSGTGPSYVAVGDEDGI EEVSTRWHENPGTVRETTT
                                                                                                                                                                                                        /product="Vng1249c"
/protein_id="AAG19608.1"
/db_xref="GI:10580776"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="Vng1246h"
/protein_id="AAG19606.1"
/db_xref="GI:10580774"
                                                                                                                                                                                                                                                                                                              /gene="VNG1249C"
/note="conserved hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="VNG1245C"
/note="conserved hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="VNG1244C"
/note="conserved hypothetical protein"
                                                                                                                                                                                   translation="MDVPSLLGKELRWGRHKLLALAAVFVVLPAVFAYVTVGFQHVLP/
                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (5405. .6064)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VNG1247G"
                                                                                                                                                                                                                                                                                                                                                                                                           .7137)
                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 14
AP006840 33/c
WPCOMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 120
                                                                                                                                                                                                                                                                                                                                                                                    Sequence split
                       Tragment Name
AP006840 01
AP006840 01
AP006840 03
AP006840 03
AP006840 04
AP006840 06
AP006840 07
AP006840 07
AP006840 07
AP006840 01
AP006840 10
AP006840 11
AP006840 12
AP006840 13
AP006840 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3685 GACAACCTCGTGAAGGCGGTGTTCCGGCTGCTCATCGAGTTGA 3643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCCAGGAGGACGCAGTGATGGAGCGCGCGCGGGGAGAACGCCGCGGCGTTCGGCGTCGAC 3686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGCCGACCACGGCCTCGAC 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACCTCGGTGTCCGCATCGCGCGGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCCGCGCGGAGATCGAGAGCATCGACCGCGAGATCGTGGATCTGATCGCGCGACGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGCGCGGAGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCCCATC
                                                                                                                                                                                                                                                                                                                                                                                        into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transI_table=1
/product="ATP-dependent_helicase"
/protein_id="AAG19610.1"
/protein_id="AAG19610.1"
/db_xref="GI:10580778"
/db_xref="GI:10580778"
/translation="MSEGGGRMDAFTHLGSEVRNALSERGFTTPTEPORRAVPALAD
/translation="MSEGGGRMDAFTHLGSEVRNALSERGFTTPTEPORRAVPALAD
GRNGLVVAPTGTGKTETAMLPVFDALVSDGGPPDGFGALYVTPLRALNRDMRERLDWW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="myrdlhyprtallayglayllyaagctgmpggssadatttnaklbyrpaslaynyaynyagmrtotdlrsytnyttlaeydlgpsaesynsykuldfedatdi nprkiqumtmetastattopgtssgaavlsttydbsgmynaibsstdttlnegtygny tyspdslcgepnytlaattopgtssgaavlsttydbsgmynaibsstdttlnegtygny tyspdslcgepnytlaatgdbstyvgdrdsynaibspgdahlegdlrsafegyng gsyvqyalsapngsbsllgyervaenapynlsavsgibytavsfgtdddditstehyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GETLGLEVDVRHGDTTDYQRRQQÁTDPPDVLVTTPETLQAMLTGSTLRDGLADVEHVV
VDEVHELAGAKRGAQLAIGLERLVEVAGRVQRIGLSATVGDPHEIGAFLTGGRGCEII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="synonym: '
complement(8313.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (8313. .11153)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RIEAAFGTNETADNTTTLDNSSAASVARP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="Vng1250h"
/protein_id="AAG19609.1"
/db_xref="GI:10580777"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(7138. .8229)
/gene="VNG1250H"
/note="hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                           96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             adsegsaeraydlidgtrslyasvspeelrpsfeagsieqdgntvivtyaesadties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note="HelA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="helA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="helA"
                       100001
200001
300001
400001
5000001
600001
7000001
10000001
11000001
12000001
13000001
                                                                                                                                                                                                                                                                                                                                                                                      fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>,</u>
                                                                   910000
1010000
1110000
1210000
1310000
                           1410000
1510000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 58.2; DB 1;
Pred. No. 27;
                                                                                                                                                                                                        510000
610000
710000
                                                                                                                                                                                   810000
                                                                                                                                                                                                                                                                           410000
                                                                                                                                                                                                                                                                                                  310000
                                                                                                                                                                                                                                                                                                                       210000
                                                                                                                                                                                                                                                                                                                                            110000
                                                                                                                                                                                                                                                                                                                                                                                        Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : VNG1251Ġ"
3. .11153)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                        AP006840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          103;
                                                                                                                                                                                                                                                                                                                                                                                           Accession AP006840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 16905;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
```

Gaps

147 3806 87 0

CDS

SgS

CDS gene

SdS

. 0%

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 15
SC0939120/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Continuation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                  JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local (
                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AP006840 16
AP006840 17
AP006840 21
AP006840 21
AP006840 22
AP006840 22
AP006840 22
AP006840 22
AP006840 23
AP006840 24
AP006840 25
AP006840 26
AP006840 27
AP006840 23
AP006840 30
AP006840 31
AP006840 31
AP006840 31
AP006840 33
AP006840 33
AP006840 33
AP006840 33
AP006840 33
AP006840 33
AP006840 33
AP006840 33
AP006840 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AP006840 35
AP006840 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           108;
                                                                                                                                                                  Bentley, S.D., Chater, K.F., Cerdeno-Tarraga, A.M., Challis, G.L., Thomson, N.R., James, K.D., Harris, D.E., Quail, M.A., Kieser, H., Harper, D., Bateman, A., Brown, S., Chandra, G., Chen, C.W., Collins, M., Cronin, A., Fraser, A., Goble, A., Hidalgo, J., Hornsby, T., Howarth, S., Huang, C.H., Kieser, T., Larke, L., Murphy, L., Oliver, K., O'Neil, S., Rabbinowitsch, E., Rajandream, M.A., Rutherford, K., Rutter, S., Seeger, K., Saunders, D., Sharp, S., Squares, R., Squares, S., Taylor, K., Warren, T., Wietzorrek, A., Woodward, J., Barrell, B.G., Parkhill, J. and Hopwood, D.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SCO939120 248550 bp DNA linear BCT 11-FEB-
Streptomyces coelicolor A3(2) complete genome; segment 17/29.
AL939120 AL078618 AL160312 AL160431 AL353815 AL356334 AL392146
AL392148 AL392175 AL392176 AL392178 AL645882
                        2 (bases 1 to 248550)
Bentley, S.D.
                                                                                                                          Complete genome sequence of the model coelicolor A3(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptomyces coelicolor A3(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptomyces coelicolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AL939120.1
                                                                                           21996410
                                                                                                          Nature 417 (6885), 141-147
                                                                                                                                                                                                                                                                                                                                                                                         Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGGTCCGGGAGATC 29011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGCGGAGCTCGACGCCCTCGACGGGACACGCTCCTGGACACGGTGCGGCGCCCCGCATCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGTTCCTGGTGAAC 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGGCGCCGGGTGGGGCAGCTGAAGCGCGGCGCCCGGGCTGCCGTCCTGCAGGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCGGTGTCCGCATCGCGCGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGGAGGAGCCGGCTGGACGAGCGGATCCTGGACCTGCTCCTGCGCCGCATGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCGAGCACGCGCTCATCAACCGGCTGGCCGGCCTGGCCGGGGACGAGCTGGCCGGCGAG 29026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of 36)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
  Submission
                                                                                                                                                                                                                                                                                                                                                                                                             Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2600001
2700001
28000001
29000001
30000001
31000001
32000001
34000001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1600001
1700001
1800001
1900001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2400001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3500001 356
of AP006840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        200000:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:24413871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17.9%;
55.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3566135
840 from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3210000
3310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3010000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2710000
2810000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2510000
2610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1710000
1810000
1910000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3510000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3410000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2410000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2210000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 55.8;
Pred. No. 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                           A3 (2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           base
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3300001 (AP006840 Symbiobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         87;
                                                                                                                                                  actinomycete Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 110000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BCT 11-FEB-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           thermoph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                     RBS
                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (09-MAY-2002) Submitted on behalf of the Streptomyces sequencing team, Sanger Institute, Wellcome Trust Genome Campus, Hinxton, Cambridge E101 15A E-mail: sdb@sanger.ac.uk
On or before Oct 26, 2002 this sequence version replaced gi:11595527, gi:7242710, gi:7248323, gi:20520808, gi:7981386, gi:10129696, gi:10129727, gi:10178320, gi:10178340, gi:10178373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="SC6F11.11c, probable araC family transcriptional regulatory protein, len: 344 aa; highly similar to TR:Q9S166 (EMBL:AB023785) Streptomyces griseus AdpA, 405 aa; fasta scores: opt: 881 z-score: 1024.1 E(): 0; 46.9% identity in 322 aa overlap and to TR:CAB70646 (EMBL:AL137242) Streptomyces coelicolor putative transcriptional regulator SC6F4.20c, 337 aa; fasta scores: opt: 1237 z-score: 1238.7 E(): 0; 60.3% identity in 325 aa overlap. Contains Pfam match to entry PF00165 HTH AraC, Bacterial regulatory helix-turn-helix proteins, araC family and a possible helix-turn-helix motif at residues 249. .270 (+2.55 SD)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (1200 . .2234)
/gene="SCO4413"
/note="synonym: SC6F11.1:
complement (1200 . .2234)
/gene="SCO4413"
                                                                                                                                                                                                         /protein_id="CAC08422.1"
/db_xref="G1:10178384"
/db_xref="G0A:Q9F375"
/db_xref="UniProt/TremBL:Q9F375"
/db_xref="UniProt/TremBL:Q9F375"
/translation="MAPETLSAPGAHGAPVRPHRVVVLALDGLLPFELGIASRIFGLA
RDEHRRPLYEVTCSVRPGFVATDADFILVGNGFBALATADTVVVPASYELGPVYE
EGVLTGELSAALAHVREGTRLVAICTGGFVLAAGYLLDFAATTHWASAEHFQRVFYE
KVRDADVLFVDDGDVLTSAGVAAGIDLCVHIVRRDHGTAVAMEVARRTVVPPHRDGGQ
AGYIERPVPDPQQSSTTAARVWALGELHEPIQLEDMAAQESMSVRTFTRRFREEEVGVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="SC6F11.10, possible regulatory protein, len: 10 aa; similar to TR:Q9ZBT2 (EMBL:AL034446) Streptomyces coelicolor putative regulatory protein SC1A9.20, 135 (fasta scores: opt: 227 z-score: 286.6 E(): 1.8e-08; 4 identity in 135 aa overlap"
                                                         regulatory helix-turn-helix 74.90, E-value 1.6e-18"
                                                                                                                          /gene="SCO4413"
                                                                                                                                                                                                                                                                                                                                                                                                             protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="UniProt/TrembL:Q9F376"
/translation="MQVLQVQLEVRPDPSEVGRARRWARSRLAGSGIRADEPLAETLV
LLVSELVTNAVVHTGRSAVLRLVLPCAVTEETQEATVRLEVDDASDRAPVPRCAGGES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="putative regulatory
/protein_id="CAC08421.1"
/db_xref="GI:10178383"
                                                                             note="Pfam match to entry PF00165 HTH_AraC, Bacterial regulatory helix-turn-helix proteins, araC family, score
                                                                                                                                                                                          PGQWLTRQRVERARHLLESTALSVDQVAQDAGFGTAQSMRQHLQAVLGVTPTGYRRTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGRGLALVDGLADRWGWSREGAGKRIWCELDRRAAGEEAPPVCGSGGGAVAYEGFAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="SCO4412"
/note="SC6F11.10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
'gene="SCO4414"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="GOA:Q9F376"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="synonym:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="SCO4412"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /organism="Streptomyces
/mol type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                               product="putative araC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 db_xref="taxon:100226"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /mol_type="genomic
/strain="A3(2)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .248550
                                            2308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SC6F11.11c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SC6F11.10"
                                                                                                                                                                                                                                                                                                                                                                                                                            family transcriptional regulatory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 coelicolor A3(2)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E(): 1.8e-08; 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aa;
```

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sd3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sg
                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                           /codon_start=1
/codon_start=1
/transT_table=11
/product="putative monooxygenase"
/product="putative monooxygenase"
/protein_id="CAC08425.1"
/protein_id="CAC08425.1"
/protein_id="CAC08425.1"
/db_xref="GI:10178387"
/db_xref="GO:12000;
/translation="MADSTASAEPQRPTHPAGRPVYVIGAGPGGLAVAHALRARGLRA
/translation="MADSTASAEPQRPTHPAGRPVYVIGAGPGGLAVAHALRARGLRA
/translation="MADSTASAEPQRPTHPAGRPVYVIGAGPGGLAVAHALRARGLRA
/translation="MADSTASAEPQRPTHPAGRPVYVIGAGPGGLAVAHALRARGLRA
/translation="MADSTASAEPQRPTHPAGRPVYVIGAGPGGLAVAHALRARGLRA
/translation="MADSTASAEPQRPTHPAGRAVVVATGYWATGRWARGLRA
/translation="MADSTASAEPQRPTHPAGRAVVVATGYWATGRAVARGLRA
/translation="MADSTASAEPQRPTHPAGRAVVVATGYWATGRAVARGLRA
/translation="MADSTASAEPQRPTHPAGRAVVVATGYWATGRAVARGLRA
/translation="MADSTASAEPQRPTHPAGRAVVATGYWATGRAVARGLRA
/translation="MADSTASAEPQRPTHPAGRAVARGGARGTGAAVARGGARGTGAAAPGLYFTGFTWPISGWLAAAGGTGRRAVARGGARGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGGTGAAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGAVARGGAGTGAAPGLYFTGFTWPISGWLRELAIDAERIAGATGAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/trans1_table=11
/product="putative integ
/protein_id="CAC08423.1'
/db_xref="GI:10178385"
/db_xref="UniProt/TrEMBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="SC6F11.14c, probable monooxygenase, len: 401 aa; similar to TR:Q95DE6 (EMBL:AP000837) Oryza sativa similar to human dimethylanilyne monoase, 437 aa; fasta scores: opt: 692 z-score: 722.8 E(): 9.3e-33; 38.2% identity in 403 aa overlap. Contains Pfam match to entry PF00743 FMO-like, Flavin-binding monooxygenase-like"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="UniProt/TremBL:Q9F373"
/translation="MGMGTEPEAAEGRELPWSNDEWNVAAALCATQLPLMWLAWWFFV/translation="MGMGTEPEAAEGRELPWSNDEWNVAAALCATQLPLMWLAWWFFVGAGGDDHGRGGAGFGVLCLPLVPLLGVVHSSAGIMPAATLARLLPRRSGPEWARHVVASVLVCAGWAVLGHLVWGWPPRDTVPWFAGAGILPVLFLAPLRRAWGGWSVWLRSAGACTUVCAGWAVLGHLVWGWPRDTVPWFAGAGILPVLFLAPLRRAWGGWSVWLRSAGACTUVCAGWAVLRLAPGGRAGLTRVPSR
                                                                                                                                         complement (4754.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="synonym: SC6F11.14c"
complement(4721..5926)
/gene="SC04416"
/note="SC6F11.14c, probable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (4721. .5926)
/gene="SCO4416"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PDFGTYRDYTRCSGTGTWSRNLSGDREGVVVRLDGDCGEETSWTIGGSERSPELFALF
GDPDAGDLLFLTRN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="SCO4415"
/note="SC6F11.13,
290 aa. Contains I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3666.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MTQTTDAAAAAASEARPEPTRPGRPTRAHRAWWVAAVTFVTII GAAAFRSLPGILIDPLHQEFGWSRGTIGAAVSVALALYGLTAFPAAALMDRFGIRRVV AVALMVIALGSGLTVMMNSAMQLILCWGLLVGLGSGSMALAFAATVTINMFTERRGLV TGVLTAASASGQLIFLFLLSWIVETVDWRPAAVTVALAALAVVPFVWILLHDHPADVG QKPYGAKEFVPKPAPVPGAARRALTVLFAAVRTGPFWLLAGTFAICGASTNGLIQTHF VPAAHDHGMFITAAASLLAVIGVFDVAGTIASGWFTDRFEPRRLLAVYYALRGVSLLF VPAAHDHGMFITAAASLLAVIGVFDVAGTIASGWFTDRFEPRRLLAVYYALRGVSLLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /mote="SC6F11.12, possible integral membrane protein, len 441 aa; similar to TR:BAB06413 (EMBL:AP001516) Bacillus halodurans transporter BH2694, 418 aa; fasta scores: opt: 795 z-score: 909.8 E(): 0; 31.0% identity in 413 aa overlap. Contains possible hydrophobic membrane spanning
/note="Pfam match to entry PF00743 FMO-like Flavin-binding monooxygenase-like, score -2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transT_table=11
/product="putative integral membrane protein"
/protein_id="CACO8424.1"
/db_xref="01:10178386"
/db_xref="UniProt/TrEMBL:Q9F373"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        regions"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="synonym:
3666. .4538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALVAFLGGVARDRFGSYDVVWIASGALCAAAALMALVIRRRPVPVAALS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LPMLLAPSVHPPMIFFIVFYGLDWVATVPPTLALCREHYGEDSAIVFGWVLASHQVGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="synonym:
2319. .3644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="SCO4414"
/note="SC6F11.12,
                                                                                             /gene="SCO4416"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene="SC04415"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                xref="UniProt/TrEMBL:Q9F374"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SC6F11.12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SC6F11.13"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    possible integral membrane protein, lepossible hydrophobic membrane spanning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          integral membrane
score -255.00, E-value
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transport
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         len:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          len:
```

```
Search completed: October Job time: 1437.22 secs
                                                                                            S
                                                                                                                                  밁
                                                                                                                                                           Ś
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                   밁
                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sg
                                                                 185444 CGGCTACTTCATCAACCCGCTGGTCACCATCGCGATGGGCGTG
                                                                                                                                   185504
                                                                                                                                                                                                   185564
                                                                                                                                                                                                                                                                    185624 GTGGTCCCTCGCCTTCGTCGCCGTCGCCCTCCTTCGTACGGCGCTGGGCCTGGGCCGG
                                                                                                                                                                                                                                                                                                                                     185684
                                                                                                                                                                                                                                                                                                                                                                                                  141;
                                                                                                                                                                                                                                                                                                  69
                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity 49.8%;
                                                                                               GATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTG
                                                                                                                                  CGTCAACTGGGGCGTCTACATCTGGGCCGTGAACAGCGGCCATGTCGTCGAGGCCTCGCT
                                                                                                                                                                                                   CGAGCTGCTGCGCAGCCGCGCAGGCTCGCCCTGGTCGCGGTGGCCGCCGCGGTCATCAC
                                                                                                                                                                                                                           CGTCCCGATGATGCAGCCCGGGCCGGCTCAGCCTGGTCAAGGACAGGGCCGCCGCCGCTACGC
                                                                                                                                                                                                                                                                                                 CACGGTGCGGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCCCGGCACGG
                                                                                                                                                                                                                                                                                                                                   GCTGTTCTGGCCGCTGCTCAAGCCCGCCGGGGGCCGGGGAGATCCTCGCCCACCGGATGGT
                                                                                                                                                                                                                                                                                                                                                                CGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGA
                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="SC6F11.15, probable acetyltransferase, len: 205 at similar to SW:RIML_ECOL1 (EMBL:X15860) Escherichia coli ribosomal-protein-Berinė acetyltransferase (EC 2.3.1.-) RimL, 179 aa; fasta scores: opt: 199 z-score: 261.1 E(): 4.8e-07; 30.6% identity in 157 aa overlap. Contains Pfam match to entry PF00583 Acetyltransf, Acetyltransferase (GNAT) family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SROMKVARVGYWVLPEARGRGVAŤRALLVASRWAYAELGLHRLELGHAVGHDASCRVA
ERSGYVVEGTLREAMFEAGRHDAPRDVHLHARLATDEEPTPPGAR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6026. .6643
/gene="SCO4417"
/note="synonym: SC6F11.15"
6026. .6643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6290. .6523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="SCO4417"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="SCO4417"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .8e-09"
                                                                                                                                                                                                                                                                                                                                                                                                                                 17.9%;
             'n
                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                  Score 55.8)
Pred. No. 3
               05:30:50
                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                     30;
                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                  142;
                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 248550;
                                                                 185402
                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                  248
                                                                                                                                                                                                                                   188
                                                                                                                                                                                                                                                                                                  128
                                                                                                                                                                                                                                                                                                                                   185625
                                                                                                                                                                                                                                                                                                                                                                    83
                                                                                                                                                                                                   185505
                                                                                                                                                                                                                                                                    185565
                                                                                                                                                                                                                                                                                                                                                                                                 0
```

Orden Anold agod sint

```
Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                         Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM nucleic - nucleic search, using sw model
                                                                                                                                ი
                                                                                                                                                       O
                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    on:
                                                                                                                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                             Score
                          53.6
53.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                         N_Geneseq_16Dec04:*
1: geneseqn1980s:*
2: geneseqn1990s:*
3: geneseqn2000s:*
4: geneseqn2001bs:*
6: geneseqn2001bs:*
6: geneseqn2002as:*
7: geneseqn2002bs:*
8: geneseqn2003bs:*
9: geneseqn2003bs:*
10: geneseqn2004ss:*
11: geneseqn2004as:*
12: geneseqn2004as:*
13: geneseqn2004as:*
                                                                                                                                                                                                                                                                        Query
Match
    100.0
95.0
84.9
43.5
117.6
117.5
117.5
117.5
117.3
117.3
117.3
117.3
117.3
117.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-3
312
1 atgaccgagcagaacgagct.....cggccgaggaccggcggtga 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      October 4, 2005, 16:46:09; Search time 188.488 Seconds (without alignments) 9798.799 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4390206 seqs, 2959870667 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GenCore version
Copyright (c) 1993 - 2005
                                                                                                                                                                                                                                                                                                                                                                                         geneseqn2003cs:*
geneseqn2003ds:*
geneseqn2004as:*
geneseqn2004bs:*
                                                                                                                                                                                                                                                                         Length DB
    3305
12397
2888
10458
45056
507
1359
137
73882
1208
5392
1208
5392
1393
1393
1393
1393
1393
1356
     18 10
11
                                                                 10
                                                                                                                                                                                 ABZ69798
AAT58552
AAT59268
                                        ABZ66707

ABZ66808

ABD12889

ABD12819

ABD12866

ADS73531

AAQ64201

 ABZ66808
ACA42290
ABD09571
                                                                                                                                                                                                                        AAF86410
AAL50181
ABZ69799
                                                                                                                                                                                                                                                                           IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         summaries
                                                                                                                                                                                                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 5.1.6
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8780412
Aaf86410 4-amino-4
Aa150181 S venezue
Abz69799 Plasmid p
Abz69799 Plasmid p
Abz69798 Plasmid p
Aat59268 Streptomy
Aat59268 Streptomy
Abz66707 Orthosomy
Abd12889 Pseudomon
Abd12889 Pseudomon
Abd12881 pseudomon
Abd12881 tcp gene
Aag64204 snaC gene
Aag64204 snaC gene
Aag64204 sraC gene
Abg66725 Orthosomy
Aat43382 Coding se
Aad36874 Streptomy
Abz66808 Orthosomy
Aca42290 Prokaryot
Abd09571 Pseudomon
                                                                                                                                                                                                                                                                         Description
```

XX	XFFFFX	무무	PIPI	X ₽ }	¥ # !	X P :	X B X	X P	XFTFF	% X	¥	XH	X Z	ጀጽ	AAI RES																	a	
Claim	PT Transfo PT group e PT PF1022, PT agroche	WPI;	Yana Mura	(MEIJ	29-8	29-SEP-	05-A	W020	CDS	Stre	Meta 4-an	4-an	22-j	AAF	SULT 1 786410 AAF8641		444	7 4	4 2	40	ა დ 9	3 3 7	36	Ω 1 Ω 1	. u	32 2	30	298	27	2 2 6 5	24	22	21
13;	Transformant group e.g. be PF1022, with agrochemicals	WPI; 2001-2 P-PSDB; AAI	Yanai K, O Murakami T;	J) MEIJI	SEP-1999	EP-2000;	05-APR-2001	WO200123542		Streptomyces	Metabolite; 4-amino-4-c	amino-4-c	2-JUN-2001	AAF86410;	6410 st		51.2	<u>-</u> :	٠.		-:	- :-	٠:	::	٠:-	-:	۲.			52.6 52.4	2.	งผ	
Page 65;	produ nzene ease	1-290517/30 AAB82072.	kakura	JI SEIKA); 99JP-		•	-A1.	1: /#:	es venezuela	; benzene; deoxychori	deoxychori	(firs		andard;		_	٠.	۵.	. 4	. 4.	16.4	.4	. 4.	4.		. 6		ω .		6	۰ ن	.9
83pp;	cing s with at lov	ō.	K, Yas	CA KAISHA LTD.	IP-00276314	2000WO-JP006783			Location/(1312 /*tag= a /product=	uelae.	on .	smic	st entry)		DNA;		25467 113193	0000	6855	6855	6816	6816	5562	5562	313	388	1686	30943	1410	3735 1410	1869	1125	1116
Jap	nit:		Yasuda	Ä	5314	5783			Qua		rism	aci	2		312		8 12																
Japanese.	secondary metabolite modified winitrogen-containing substituent cost, for application in pharm		S, Watanabe M, Miyamoto	TD.					Qualifiers "4-amino-4-deoxychorismic ac		chorismic acid; p-aminophenylpyruvi mic acid mutase; enzyme; papB; ds.	d mutase coding sequence.			Bp.	ALIGNMENTS	ADQ07566 AAD54645	<i>.</i>								•				ADT45696 ADM80073			
	ed with functional tuent at para-position, pharmaceuticals and		o K, Midoh N;						cid mutase"		uvic acid; s.						Adg07566 Streptomy Add54645 Streptomy	Ads16296 Human vol	uman c	uman T-t	Adh69264 Human TCC	Aas16826 Human T-t	Aaf31674 Human alp	Aav57542 Human cal	Aac89250 Human bra	Accises to Human GPC	Aad36877 S. clavul	Adm80034 Spiramyci Adn97550 S ambofac	Adn97589 S ambofac	Adt45696 Bacterial Adm80073 Spiramyci	Ads49946 Bacterial	Abd09470 Pseudomon	Abd09634 Pseudomon

```
AALSOLLT 2
AALSOLLT 2
AALSOLLT ID AALS
XX AALS
XX AALS
XX Subs
XX Subs
XX Subs
XX Vete
XX Vete
XX Vete
XX Vete
XX Vete
XX Vete
XX Vete
XX W Phen
XX Vete
XX W PHEN
XX WO2C
PH CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
PT CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              as to produce a secondary metabolite. The secondary metabolite has a control before a secondary metabolite. The secondary metabolite has a control skeleton free from substitution at the para-position by a nitrogen-containing functional group, thereby enabling the production of a secondary metabolite with a benzene ring skeleton substituted at the para-position by a nitrogen-containing group. The transformant organism of the present invention has been produced by transferring a gene participating in the biosynthesis pathway from chorismic acid into paninophenylpyruvic acid. The present sequence is the coding sequence for 4-amino-4-deoxychorismic acid mutase (papB), from Streptomyces venezuelae. papB participates in the biosynthesis pathway from chorismic acid into paminophenylpyruvic acid, and so the papB gene can be used to produce the transformant of the present invention. The transformant can be used to produce metabolites for application in pharmaceuticals, cetterinary drugs and agrochemicals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                            Substance PF1022; biosynthesis; transgenic; chorismic aci phenylalanine; p-aminophenylpyruvic acid; pharmaceutical; veterinary drug; gene; ds.
                                                                                                                                                                                                                                                                                                                      S venezuelae PF1022 substance gene
 22-MAR-2002; 2002WO-JP002782.
                                       03-OCT-2002
                                                                          WO200277244-A1.
                                                                                                                                                                                                         Streptomyces venezuelae.
                                                                                                                                                                                                                                                                                                                                                               28-JAN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                       AAL50181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                present invention relates to a transformant having been modified so to produce a secondary metabolite. The common to produce a secondary metabolite.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l Similarity
312; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              μ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGGGAGCTCGACGCCCTCGACGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                       standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACCGGCGGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCTACGCCGACCACCGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCACGGCGTCCCGATGATGCAGCCCGGCCCGGTCAGCCTGGTCAAGGACAGGGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGGGCGGAGGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                  Location/Qualifiers
                                                                                                             product=
                                                                                                                                *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             54 A; 106 C; 111 G;
                                                                                                                                                    .312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    312
                                                                                                               "PF1022 substance"
                                                                                                                                                                                                                                                                                                                                                                                                                                       ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۰,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 312; DB 4;
Pred. No. 1.4e-46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                          #2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                 chorismic acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 312;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                   anthelmintic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
```

```
RESULT 3
ARZ69792
ID ARZ68
XX ARZ66
AC ARZ6
XX
DT 08-A
XX
DE Plas
XX
XX
DHFR
XW DHFR
XW Orth
KW chlo
KW chlo
XX
OS Synt
                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Sim
Matches 312;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present invention relates to transformants capable of producing PF1022 substance derivatives. These were obtained by transferring a gen participating in the biosynthesis pathway from chorismic acid to paminophenylpyruvic acid (biosynthesis gene) into a phenylalanine-requiring host derived from an organism producing the PF1022 substance. The transformants are producing PF1022 substance derivatives by fermentation, for use as pharmaceuticals or veterinary drugs. The prese sequence is a substance PF1022 coding sequence from Streptomyces
                                          DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; Tyrk: orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Novel biosynthesis gene-transferred transformants for producing PF1022 substance derivatives by fermentation, as pharmaceuticals or veterinary
                                                                                                      Plasmid papABC
                                                                                                                                      08-APR-2003
                                                                                                                                                                  ABZ69799;
                                                                                                                                                                                               ABZ69799 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-MAR-2001; 2001JP-00082227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2003-018934/01.
                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ance derivatives by fermentation, with anthelmintic activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ~
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                           GACCGGCGGTGA 312
                                                                                                                                                                                                                                                                                                       GACCGGCGGTGA 312
                                                                                                                                                                                                                                                                                                                                       ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                          ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                           CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCCTGGACACGGTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCTGGACACGCTGCGGCGCCCCCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGACCGAGCAGAACGAGCTGCAGCGCGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCCGCGGAGCTCGACGCCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sumida N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BP; 54 A; 106 C; 111 G; 41 T; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85; 116pp; Japanese.
                                                                                                                                                                                               DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Watanabe M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                 ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 312; DB 8;
Pred. No. 1.4e-46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Moriya
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Murakami
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                            CAT; TyrRS; mino acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                H
                                                                                                                                                                                                                                                                                                                                                                                                  CTACGACGTGATC
                                            ds;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                          plasmid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
```

Synthetic

biosynthesis;

p-aminophenylalanine; pAF; chorismate.

```
RESULT 4
ABZ69798
ID ABZ6
                                                                           र्
                                                                                                    밁
                                                                                                                      δ
                                                                                                                                                밁
                                                                                                                                                                    ঠ
                                                                                                                                                                                             밁
                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                             ई
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                   the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the Aspl2TAG mutant of chloramphenicol acetyltransferase (CAT), the Tyr163TAG mutant of mouse dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse dihydrofolate reductase comprising CHOOH His6tag. The unnatural amino acid is provided exogenously. The translation system is a cell and the unnatural amino acid is biosynthesised by the cell. The present sequence represents a plasmid containing the individual gence papABC that encode the enzymes used to carry out the conversion of chorismate to the unnatural amino acid p-aminophenylalanine (pAF)
ABZ69798 standard; DNA; 12391 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-tRNA with at least one unnatural amino acid in the translation system of tRNA with at least one unnatural amino acid in the translation system.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and the O-tRNA recognises at least one selector codon. A composition of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 4; Page 127-128; 188pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aminoacyl tRNA synthetase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Composition useful for has translation system
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2003-120430/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Schultz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-APR-2001; 2001US-0285030P
06-FEB-2002; 2002US-0355514P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200285923-A2
                                                                                                    3230
                                                                                                                                                  3170
                                                                                                                                                                                              3110
                                                                                                                                                                                                                                           3050
                                                                                                                                                                                                                                                                                         2990
                                                                                                                          237
                                                                                                                                                                       177
                                                                                                                                                                                                                   117
                                                                             297
                                                                                                                                                                                                                                                                                                                                     311;
                                                                                                                                                                                                                                                                 57
                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ΕĽ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SCRIPPS RES INST
                                                                                                                                                                                                                                                                                                                                                                                  3305
                                                                                                                                                                                                                                                                                       ATGACCGAGCAGAACGAGCTGCAGGTTGCGGCGCGCGGAGCTCGACGCCCTCGACGG 3049
                                                                                                                                                                                                                                                                                                    ATGACCGAGCAGAACGAGCTGCA----GCGGCTGCGCGGGGGCTCGACGCCCTCGACGG 56
                                                                                                                 GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGAGCCTGACGGC
                                                                                                                                                            CGCCCGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                                                                                                           GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGC
                                                                                                                                                                                                            GACGCTTCTGGACACGGTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAA
                                                                                                                                                                                                                                                               GACGCTCCTGGACACGGTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAA 116
                                                                      CGAGGACCGGCGGTGA 312
                                                                                                   GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGC 3289
                                                                                                                                                CGCCCGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                        ceaecacceccerea 3305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wang L, P
Mehl RA,
                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                  BP; 445 A; 1327 C; 1121 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Anderson JC,
A, Pastrnak M,
                                                                                                                                                                                                                                                                                                                                               95.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           producing p
                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                   Score 296.4; DB 8;
Pred. No. 6.6e-44;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein comprising unnatural amino acid
g orthogonal tRNA and orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chin JWK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Santoro
                                                                                                                                                                                                                                                                                                                                                                              412 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zhang
                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                        Length 3305;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Magliery
                                                                                                                                                                                                                                                                                                                                    4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                걸
                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                          296
                                                                                                                                                                      236
                                                                                                                                                                                             3169
                                                                                                                                                                                                                                          . 3109
                                                                                                                                                3229
                           δ
                                                       밁
                                                                    . S
                                                                                                   밁
                                                                                                                      á
                                                                                                                                               밁
                                                                                                                                                                                                                                         S
                                                                                                                                                                                          Query Match
Best Local S
Matches 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Schultz
Meggers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2003-120430/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Plasmid plasc-papabc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABZ69798;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (SCRI ) SCRIPPS RES INST
                                                                                                    2115
                                                                                                                                               2055
                                177
                                                                            117
                                                                                                                                                                                             280;
                                                                                                                        57
                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 면,
                                                                                                                                                                                                                                                                VIVO
           CGCCCGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , .Wang L, A
L, Mehl RA,
```

```
The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-tRNA with at least one unnatural amino acid in the translation system and the O-tRNA recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the AsplZTAG mutant of chloramphenical acetyltransferase (CAT), the Tyr163TAG mutant of mouse dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse dihydrofolate reductase comprising CHOOH His6tag. The unnatural amino acid is biosynthesised by the cell. The present sequence represents a plasmid for use in the biosynthesis of p-aminophenylalanine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Composition useful for producing protein comprising unnatural amino has translation system comprising orthogonal tRNA and orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS;
orthogonal aminoacyl tRNA synthetase; unnatural amino acid;
chloramphenicol acetyltransferase; dihydrofolate reductase; ds; plasmid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 12391 BP; 2830 A; 3588 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aminoacyl tRNA synthetase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-APR-2001; 2001US-0285030P
06-FEB-2002; 2002US-0355514P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Example 4; Page 124-127; 188pp; English:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            biosynthesis; p-aminophenylalanine; pAF.
CGCCCGCTACGCCGACCACCACCGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                      GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGC
                                                                                                                                                                                       GACGCTTCTGGACACGGTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAA
                                                                                                                                                                                                                        GACGCTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAA
                                                                                                                                                                                                                                                                                                ATGACCGAGCAGAACGAGCTGCAGGTTGCGGCTGCGCGCGAGGCTCGACGCCCTCGACGG
                                                                                                                                                                                                                                                                                                                                                     ATGACCGAGCAGAACGAGCTGCA----GCGGCTGCGCGCGGAGCTCGACGCCCTCGACGG
                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                    84.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Anderson JC,
, Pastrnak M,
                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                          Score 264.8; DB 8
Pred. No. 2.3e-38;
0; Mismatches 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chin JWK, Li
Santoro SW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ຸດ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Liu DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 12391;
                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0 U; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Magliery z;
                                                                                                                                                                                                                                                                                                                                                                                                               4.
                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acid,
                                                                                                                                                                                                                                         116
                 236
                                                                        2234
                                                                                                                                                                                       2174
                                                                                                                                                                                                                                                                                                2114
                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                                                                                            1
```

282

S

밁

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                        The papA and papM genes of S.pristinaespiralis are involved in the biosynthesis of 4-dimethylamino-L-phenylalanine (DMPAPA), a precursor for pristinamycin IA. The region between these two genes was sequenced and two open reading frames were identified. The first (papC) was on the complementary strand and decodes to an amino acid sequence with homology to the region of E.coli TyrA which has been implicated in aromatisation reactions. The PapC gene product is likely to be involved in a similar aromatisation of 4-deoxy 4-amino prephenate to give 4-amino phenylpyruvate during DMPAPA synthesis. The second open reading frame (papB) could be decoded to give a product with homology to the region of TyrA which has chorismate mutase activity. The PapB gene product is likely to catalyse the isomerisation of 4-deoxy 4-amino chorismate to 4-deoxy 4-aminoprephenate acid. Disruption of the papB gene product is be used to produce strains of S.pristinaespiralis which are unable to produce the antibiotic pristinamycin I but which may be able to produce con the produce of the produce the antibiotic pristinamycin I but which may be able to produce
                                          Query Match
Best Local S
Matches 183
                                                                                                                                                                                                                                                                                                                                                                                                     New streptogramin B derivs. useful as antibiotics - produced by new mutants of Streptomyces having altered genes for streptogramin B
                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1996-097631/10.
P-PSDB; AAW11583.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DMPAPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAT58552;
                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                               Claim 18; Page 106-107; 146pp; French
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Barriere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (RHON ) RHONE POULENC RORER SA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-JUL-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25-JAN-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO9601901-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptogramin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomyces pristinaespiralis papB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      02-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAT58552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               togramin B; antibiotic; biosynthesis; pristinamycin; virginiamycin; precursor; 4-dimethylamino-L-phenylalanine; papA; papM; papB; isomerisation; N-methyltransferase; ds.
                                            al Similarity
183; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <
14 ACGAGCTGCAGCGCGCGCGCGGAGCTCCGACGCCCTCGACGGGACGCTCCTGGACACGG
                                                                                                  387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thibaut D, I
I, Debussche
                                            Conservative
                                                                                                B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pristinaespiralis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94FR-00008478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95WO-FR000889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product= "PapB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDNA;
                                                       43.5%;
                                                                                                A; 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bamas-Jacques
L, Famechon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           387
                                                                                                 Ç
                                          0;
                                          Score 135.6;
Pred. No. 2.3e
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽₽
                                                                                                 110
                                                                                                 ç.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ÞΖ
                                                                                                 40 T;
                                          2.3e-15;
ches 79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Blanche |
Paris J,
                                                                    DB 2;
                                                                                                 0 U; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F, Crouset, Dutruc-Rosset
                                                                                                 Other;
                                                                   Length
                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2340
                                                                      387;
                                          0
                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>،</u>
                                                                                                                                                                                                                                                                                                                      for
                 73
                                          0
```

```
RESULT 6
AAT5 2268
ID AAT5
XX AAT5
XX AAT5
XX AAT5
XX AAT5
XX Stre
XX Stre
XX Stre
XX DMDD
XX DMDD
XX PT CDS
FT CD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptogramin B; antibiotic; biosynthesis; pristinamycin; virginiamycin; DMPAPA precursor; 4-dimethylamino-L-phenylalanine; papA; papM; papB; papC; isomerisation; aromatisation; N-methyltransferase; ds.
                                             New streptogramin B derivs. useful as antibiotics - produced mutants of Streptomyces having altered genes for streptogram
                         biosynthesis.
                                                                                                                                                                                                                     Blanc V,
                                                                                                                                                                                                                                                                                                                                                                    04-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptomyces pristinaespiralis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAT59268;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAT59268 standard; cDNA; 2888
                                                                                                                        P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                    25-JAN-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9601901-A1
                                                                                                                                                                                                                                                                     (RHON ) RHONE
                                                                                                                      1996-097631/10.
DB; AAW11582, AAW11583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 CGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59
                                                                                                                                                                                            Ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCGTCGAGGACCTGGTGAT 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGCCTCGAGGACGAGTGGAT 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCGGCGCATCGATCGGCGTGTCCGCCATCGCGCGGTACAAGTCCCCGGCACGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCCCCTCGACGCGCTGCGCCCGCCCTGGACGCCGCGGACGCCCCTGCTGGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCT
                                                                                                                                                                                                                     Thibaut D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pristinaespiralis papA and
                                                                                                                                                                                               Debussche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                     POULENC RORER SA
                                                                                                                                                                                                                                                                                                                     94FR-00008478.
                                                                                                                                                                                                                                                                                                                                                                    95WO-FR000889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         open reading frame" complement (949. .1836)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               open reading frame"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product= "PapM"
/note= "N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                product= "PapB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product= "PapC"
1873. .2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note= "C-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               product= "PapA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            259. .2888
                                                                                                                                                                                          Bamas-Jacques N,
e L, Famechon A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      coding
                                                                                                                                                                                            Blanche F, Crouzet J;
Paris J, Dutruc-Rosset
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  papM intergenic region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     region only, i.e. a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           region
                                               streptogramin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        only,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.
6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ø
                                                                   γď
                                          , new
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      partial
                                                                                                                                                                                               <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    238
```

```
RESULT 7
ABZ66707
ID ABZ66707
ID ABZ66707
XX ABZ6
XX ABZ6
XX Orth
XX Orth
XX Orth
XX Orth
XX Orth
XX Orth
XX BLTe
PN WO20
XX WO20
XX BLTe
PN WO20
XX BLTe
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX ORTH
XX O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The papA and papM genes of S.pristinaespiralis are involved in the biosynthesis of 4-dimethylamino-L-phenylalanine (DMPAPA), a precursor for pristinamycin IA. The region between these two genes was sequenced and two open reading frames were identified. The first (papC) was on the complementary strand and decodes to an amino acid sequence with homology to the region of E.coli TyrA which has been implicated in aromatisation reactions. The PapC gene product is likely to be involved in a similar aromatisation of 4-deoxy 4-amino prephenate to give 4-amino phenylpyruvate during DMPAPA synthesis. The second open reading frame (papB) could be decoded to give a product with homology to the region of TyrA which has chorismate mutase activity. The PapB gene product is likely to catalyse the isomerisation of 4-deoxy 4-amino chorismate to 4-deoxy 4-aminoprephenate. Disruption of the papB and papC genes can be used to produce strains of S.pristinaespiralis which are unable to produce the antibiotic pristinaemycin I but which may be able to produce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                 28-MAR-2001; 2001US-0279095P.
30-MAR-2001; 2001US-0279709P.
20-APR-2001; 2001US-0285214P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Orthosomycin biosynthetic polynucleotide SEQ ID
  Farnet
                                                                                                                                                                                                          28-MAR-2002; 2002WO-CA000432
                                                                                                                                                                                                                                                             10-OCT-2002
                                                                                                                                                                                                                                                                                                                WO200279505-A2
                                                                                                                                                                                                                                                                                                                                                                 Streptomyces mobaraensis
                                                                                                                                                                                                                                                                                                                                                                                                                    Orthosomycin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABZ66707;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AB266707 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example
                                                   (ECOP-) ECOPIA BIOSCIENCES INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
  3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGCGTCGAGGACCTGGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGATGATGCAGCCCGGCCCGGCTCAGCCTGGTCAAGGACAGGCCCGCCGCCGCTACGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGCGGCGCCATCGACCTCGGTGTCCGCATCGCGCGTACAAGTCCCCGGCACGGCACGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCCCCTCGACGCGCGCGCGCCCGCCCTGGACGCCGCGCCCCCCCTGGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGAGCTGCAGCGGCGCGCGGAGCTCGACGCCTCGACGGGACGCTCCTGGACACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGCCTCGAGGACGAGTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCCTCCACCAGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Page 102-104;
Zazopoulos E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                  biosynthesis; everninomicin; avilamycin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP; 390 A; 1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             forms of it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              43.5%;
69.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          146pp;
  Staffa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 135.6; 1
Pred. No. 1.9e.
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          French
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       897 G; 282 T;
  Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .b;
1.9e-15;
79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٦;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 2888;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Other;
                                                                                                                                                                                                                                                                                                                                                                                                                  gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                    dв
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

```
RESULT 8
ABZ66808/c
   맑
                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The invention relates to identifying orthosomycin biosynthetic genes and its fragment/gene cluster (ABZ66670-ABZ66813), comprising detecting the presence of a nucleic acid sequence coding for a polypeptide (ABP99207-ABP99362). The method is useful for identifying an orthosomycin biosynthetic gene, gene fragment or gene cluster, especially an everninomicin-type or avilamycin-type orthosomycin biosynthetic gene, gene fragment or gene cluster. The method is useful for detecting the presence of any organism that contains DNA for the production of orthosomycins (both everninomicin-type orthosomycins and avilamycin-type orthosomycins) regardless of the level at which genes for orthosomycin production are expressed by the organism or the amount of orthosomycin produced by the organism. This allows for the detection of new
28-MAR-2001; 2001US-0279095P.
30-MAR-2001; 2001US-0279709P.
                                             28-MAR-2002;
                                                                                                                                         Streptomyces mobaraensis
                                                                                                                                                                       Orthosomycin; biosynthesis;
                                                                                                                                                                                                      Orthosomycin biosynthetic gene cluster SEQ
                                                                                                                                                                                                                                                                                                   ABZ66808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Identifying orthosomycin biosynthetic gene, gene fragment or gene cluster, by detecting presence of nucleic acid sequence corresponding 17 of flambamycins protein families.
                                                                                                            WO200279505-A2
                                                                                                                                                                                                                                       21-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1458 BP; 229 A; 530 C; 491 G; 208 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             orthosomycin natural products,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2003-058435/05.
P-PSDB; ABP99244.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                924
                                                                                                                                                                                                                                                                                                                                                                                                              246
                                                                                                                                                                                                                                                                                                                                                                                                                                               864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2; Page 231-232; 511pp; English.
                                                                                                                                                                                                                                                                                                   standard; DNA; 45055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCGCTGGTCCAGGAGAACCCGACCGTCCGCGACCTCATGGCGGAGGGCGAGTACCAGCC 803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCCGACGGGACGCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                              GGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCAC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGGCGTCCGGGTGGAGCAGGACTTCTCCTACGTCGCCGACAGCTTCCACGGCCCCGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCACCAGGACCGCTTCCTGGAGCGCCGCAAGGAGCACGACCTGGACGCGATGCTCGC 743
                                                                                                                                                                                                                                                                                                                                                                                                                                               CTACCTCGCCGGCGACGCCTGCTTCCTCGACCCGCTGCTGTCCACCGGCGTCCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                             2002WO-CA000432
                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17.6%;
                                                                                                                                                                        everninomicin; avilamycin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 54.8;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             not produced by the organism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 10;
                                                                                                                                                                                                       IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   152;
                                                                                                                                                                                                       NO 277.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1458;
                                                                                                                                                                        gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                            303
                                                                                                                                                                                                                                                                                                                                                                               981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
RESULT 9
ABD12889
      PX PX SX X X X D X D X A X X I I
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Sim
Matches 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The invention relates to identifying orthosomycin biosynthetic genes and its fragment/gene cluster (ABZ66670-ABZ66813), comprising detecting the presence of a nucleic acid sequence coding for a polypeptide (ABP9207-ABP9362). The method is useful for identifying an orthosomycin biosynthetic gene, gene fragment or gene cluster, especially an everninomicin-type or avilamycin-type orthosomycin biosynthetic gene, gene fragment or gene fragment or gene fragment or gene fragment or gene cluster. The method is useful for detecting the presence of any organism that contains DNA for the production of orthosomycins (both everninomicin-type orthosomycins and avilamycin-type orthosomycins) regardless of the level at which genes for orthosomycin produced by the organism or the amount of orthosomycin produced by the organism. This allows for the detection of new
                                    US6551795-B1
                                                                                                                                             Pseudomonas aeruginosa polynucleotide #11493.
                                                                                                                                                                                                                                           ABD12889 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 45055 BP; 6228 A; 16576 C; 16043 G; 6208 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Identifying orthosomycin biosynthetic gene, cluster, by detecting presence of nucleic ac
                                                                 Pseudomonas aeruginosa
                                                                                                 antibacterial
                                                                                                              Bacterial infection;
                                                                                                                                                                              29-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       orthosomycin natural products, not produced by the organism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20-APR-2001; 2001US-0285214P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        luster, by detecting presence or in
7 of flambamycins protein families.
                                                                                                                                                                                                                                                                                                                            37389
                                                                                                                                                                                                                                                                                                                                                                                       37449
                                                                                                                                                                                                                                                                                                                                                                                                                                                      37509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   37569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2003-058435/05
                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                       186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6 CGAGCAGAACGAGCTGCAGCGGCTGCGCGGAGCTCGACGCCCTCGACGGGACGCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Č.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                         GGCGCTCTACAGCGGCATGCTGGCCGCGACGTCCGTGCTCGCCACGGTGAACGAGGAC 37332
                                                                                                                                                                                                                                                                                                                                                                                      CTACCTCGCCGGCGACGCCGGCTGCTTCCTCGACCCGCTGCTGTCCACCGGCGTCCACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGCGTCCGGGTGGAGCAGGACTTCTCCTACGTCGCCGACAGCTTCCACGGCCCCGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCGCTGGTCCAGGAGAACCCGACCGTCCGCGACCTCATGGCGGAGGGCGAGTACCAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCCCGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCACCAGGACCGCTTCCTGGAGCGCCGCAAGGAGCACGACGACCTGGAGGCGATGCTCGC
                                                                                                                                                                                                                                                                                                                                                     GGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGAGCCTGACGGCCGAGGAC 303
                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Page 425-450;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zazopoulos
                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BIOSCIENCES
                                                                                                                                                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          49.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ħ
                                                                                                                                                                                                                                             507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               511pp; English.
                                                                                                                ds;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Staffa
                                                                                                                                                                                                                                           В₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 0.3;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 54.8;
Pred. No. 0.
                                                                                                              Pseudomonas aeruginosa infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            e, gene fragment or gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             corresponding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            45055;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                125
                                                                                                                                                                                                                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65
                                                                                                                                                                                                                                                                                                                                                                                                                                                    37450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              37570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ť
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
RESULT 10
ABD12819/c
ID ABD128
XX
AC ABD128
XX
AC ABD128
XX
DT 29-JUL
XX
DE Pseudo
XX
                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to Pseudomonas aeruginosa polypeptides and the polymucleotides encoding them. The sequences are useful in diagnosis and therefore therefore are useful in diagnosis and the theory of pathological conditions, as molecular targets for diagnostics, prophylaxis and treatment of pathological conditions resulting from a bacterial infection, for evaluating a compound, such as a polypeptide, for the ability to bind a P. aeruginosa nucleic acid, as components of effective antibacterial targets, as targets for antibacterial drugs, including anti-P. aeruginosa drugs, as templates for recombinant production of P. aeruginosa drugs, as templates for recombinant components for diagnosis and/or treatment of P. aeruginosa caused infection, and in detection of P. aeruginosa sequences or other sequences of pseudomonas species using biochip technology. Sequence ABD1197-CC ABD17967 represent P. aeruginosa polymucleotides of the invention. Note: The sequence data for this patent did not form part of the printed specification but was obtained in electronic format from USPTO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 507
                Pseudomonas aeruginosa polynucleotide #11423
                                               29-JUL-2004
                                                                                                              ABD12819 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; SEQ ID NO 11493;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-FEB-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seqdata.uspto.gov/sequence.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GENO-) GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2003-615309/58.
DB; ABO79318.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    149
                                                                                                                                                                                                                                                                                                                                                                                       209
                                                                                                                                                                                                                                                                                                                                                                                                                   93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            THERAPEUTICS CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98US-0094190P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98US-0074788P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-00252991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nolling J,
                                                                                                              DNA; 1359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                              ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               455pp;
```

```
Novel isolated nucleic acid encoding Pseudomonas aeruginosa polypeptide, useful as molecular targets for diagnostics, prophylaxis and treatment of pathological conditions resulting from bacterial infection.
                                                                                                                                                                                                                                                                                                                                                          Deloughery C,
English.
                                                                                                                                                                                                                                                                                                                                                              Bush
```

BP; 86 A; 176 C; 163 G; 82 T; 0 U; 0 Other;

```
269 TCGCGACCTGTTCCTGCGCGCGCTTCGACCGCAGCGTCCGCGAGCATCTGCGCGACGAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                         33 CGCGGAGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCT
CGATGGCAGCCTGGCCGCGACCCTCAAGGACGGCCGG
                                               GATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCGG
                                                                                                 GGGCAAGAAGGGCCTGGACCTGCAGTTCAACAGCGACATCGCCCGTATCGACAAACAGGC
                                                                                                                                                GTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGT
                                                                                                                                                                                                                                                    CGGTGTCCGCATCGCGCGGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                       CGAAGCGTTCTTCCTCGAGCGCCTGCCGCGCGCCGCATGCTGGTGGTCGGCGGCGGCGACAT
                                                                                                                                                                                                                                                                                                      CGCCGTCGAGTTCGCCTCGATCTTCAACGGGCTCGGCGCCGAGACCACCTTGCTCTACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 54.6; DB Pred. No. 0.49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          139;
425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                  328
                                                                                                                                                                                                                                                    212
                                                                                                                                                                                                                                                                                                                                                     152
                                                                                                                                                                                                                                                                                                                                                                                                         208
```

```
RESULT 11
ABD12866
                                                                                    S
                                                                                                                   용
                                                                                                                                              Ś
                                                                                                                                                                             밁
                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                             The invention relates to Pseudomonas aeruginosa polypeptides and the polymucleotides encoding them. The sequences are useful in diagnosis and therefore thereby of pathological conditions, as molecular targets for diagnostics, prophylaxis and treatment of pathological conditions resulting from a bacterial infection, for evaluating a compound, such as a polypeptide, for the ability to bind a P. aeruginosa nucleic acid, as components of effective antibacterial targets, as targets for antibacterial drugs, including anti-P. aeruginosa drugs, as templates for recombinant production of P. aeruginosa drugs, as templates for recombinant components for diagnosis and/or treatment of P. aeruginosa-acused infection, and in detection of P. aeruginosa sequences or other sequences of pseudomonas species using biochip technology. Sequence ABD1197-C. ABD1797 represent P. aeruginosa polymucleotides of the invention. Note: specification but was obtained in electronic format from USPTO at
                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                       seqdata.uspto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pathological conditions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rubenfield MJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-FEB-1998;
27-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US6551795-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 antibacterial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacterial infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (GENO-)
                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                               808
                                                                                                                                                                                                                                         888
                                                                                                                   748
                                                                                                                                               213
                                                                                                                                                                                                           153
                                                                                                                                                                                                                                                                                                    928
                                                         688
                                                                                      273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          isolated nucleic acid encoding Pseudomonas aeruginosa polypeptide, as molecular targets for diagnostics, prophylaxis and treatment of logical conditions resulting from bacterial infection.
                                                                                                                                                                                                                                                                                                                                                               138;
                                                                                                                                                                                                                                                                      93
                                                                                                                                                                                                                                                                                                                                33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENOME
                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                         1359 BP; 212 A; 463 C;
                                                                                                                                                                             TCGCGACCTGTTCCTGCGCGGCTTCGACCGCAGCGTCCGCGAGCATCTGCGCGACGAATT
                                                                                      GATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCGG
                                                                                                                   GGGCAAGAAGGGCCTGGACCTGCAGTTCAACAGCGACATCGCCCGTATCGACAAACAGGC
                                                                                                                                               GTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGT 272
                                                                                                                                                                                                         GETCAGCCTGGTCAAGGACAGGGCCGCCCGCTACGCCGCCGACCACGGCCTCGACGAATC
                                                                                                                                                                                                                                       CGCCGTCGAGTTCGCCTCGATCTTCAACGGGCTCGGCGCCGAGACCACCTTGCTCTACCG
                                                                                                                                                                                                                                                                     CGGTGTCCGCATCGCGCGGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCG
                                                                                                                                                                                                                                                                                                  CGCGGAGCTCGACGCCCCCGGACGGACGCTCCTGGACACGGTGCGGCGCCGCCATCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 11423; 455pp; English
                                                                                                                                                                                                                                                                                                                                                            17.5%;
llarity 49.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                     .gov/sequence.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  THERAPEUTICS CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0074788P.
98US-0094190P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-00252991.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nolling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ų
                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Deloughery C,
                                                                                                                                                                                                                                                                                                                                                            Score 54.6; D
Pred. No. 0.45
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pseudomonas aeruginosa infection;
                                                                                                                                                                                                                                                                                                                                                                                                                         446 G;
                                                                                                                                                                                                                                                                                                                                                                          6; DB 11;
0.45;
                                                                                                                                                                                                                                                                                                                                                                                                                         238 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bush
                                                                                                                                                                                                                                                                                                                                                              139;
                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                      309
                                                         652
                                                                                                                                                                                                                                                                                                                                                                                                                         Ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ö
                                                                                                                                                                                                                                                                                                                                                                                          Length 1359;
                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                         0 Other;
                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                             749
                                                                                                                                                                                                         212
                                                                                                                                                                                                                                                                     152
                                                                                                                                                                                                                                                                                                  869
                                                                                                                                                                                                                                                                                                                               92
                                                                                                                     589
                                                                                                                                                                                                                                         809
```

```
Ś
                                 문
                                                           S
                                                                                          밁
                                                                                                                    Ś
                                                                                                                                                    밁
                                                                                                                                                                              δ
                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to Pseudomonas aeruginosa polypeptides and the polymucleotides encoding them. The sequences are useful in diagnosis a therapy of pathological conditions, as molecular targets for diagnosts prophylaxis and treatment of pathological conditions resulting from a bacterial infection, for evaluating a compound, such as a polypeptide, for the ability to bind a P. aeruginosa nucleic acid, as components of effective antibacterial targets, as targets for antibacterial drugs, including anti-P. aeruginosa drugs, as templates for recombinant
                                                                                                                                                                                                                                                                                                                production of P. aeruginosa-derived peptides or polypeptides, as tar components for diagnosis and/or treatment of P. aeruginosa-caused infection, and in detection of P. aeruginosa sequences or other sequence for Pseudomonas species using biochip technology. Sequences ABD01397-ABD17967 represent P. aeruginosa polymucleotides of the invention. When sequence data for this patent did not form part of the printed specification but was obtained in electronic format from USPTO at
                                                                                                                                                                                                                                                                     Sequence 1371 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Novel isolated nucleic acid encoding Pséudomonas aeruginosa polypeptide, useful as molecular targets for diagnostics, prophylaxis and treatment of pathological conditions resulting from bacterial infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure; SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rubenfield MJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18-FEB-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22-APR-2003.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US6551795-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pseudomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  antibacterial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacterial infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29-JUL-2004
                                                                                                                                                                                                                                                                                                  seqdata.uspto.gov/sequence.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (GENO-) GENOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pseudomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABD12866 standard; DNA; 1371
    213
                                 909
                                                              153
                                                                                           546
                                                                                                                                                    486
                                                                                                                                                                                                              138;
                                                                                                                       93
                                                                                                                                                                               33
    GTTCCTGGTGAACCTTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGT
                                 TCGCGACCTGTTCCTGCGCGGCTTCGACCGCAGCGTCCGCGAGCATCTGCGCGACGAATT
                                                             GGTCAGCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGCCGACCACGGCCTCGACGAATC
                                                                                           CGCCGTCGAGTTCGCCTCGATCTTCAACGGGCTCGGCGCCGAGACCACCTTGCTCTACCG
                                                                                                                     CGCGGAGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         aeruginosa polynucleotide #11470
                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98US-0074788P
98US-0094190P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-00252991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nolling
                                                                                                                                                                                                                                                                     241 A; 445 C; 464 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NO 11470; 455pp;
                                                                                                                                                                                                                         17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene; ds; Pseudomonas aeruginosa infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORP
                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Deloughery
                                                                                                                                                                                                                          Score 54.6; DB Pred. No. 0.45;
                                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       English.
                                                                                                                                                                                                                                                                       221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ú
                                                                                                                                                                                                                                        DB 11;
                                                                                                                                                                                                                                                                     7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bush
                                                                                                                                                                                                              139;
                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                       ς;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ö
                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                        Length 1371;
                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                       Other;
                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             iagnosis and diagnostics
                                                                                                                                                                                                                                                                                                                                                                            sequences
                                                                                                                                                                                                                                                                                                                                                                                                       target
                                                                                                                                                                                                                                                                                                                                                Note:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Of
                                                                                                                                                    545
```

맑

999

GGGCAAGAAGGGCCTGGACCTGCAGTTCAACAGCGACATCGCCCGTATCGACAAACAGGC

272 665 212 605 152

0

 	0 10 10 10 10 10 11 11 11 11 11 11 11 11 11 11 11 11 11		1 7 7 7 7 7 7 7 1 1 1 1 1 1 1 1	**************************************	1 4 4 4 4 4	1 7 7 7 7 1 1 1 1 1			77 P	¥ 8 ¥	\$ \$ \$ \$ \$ \$	XX	XZX	AX I AE	D Q
	CDS	CDS	CDS	CDS	CDS	CDS	CDS	CDS	Key CDS	Actinoplanes t	antibiotic; ba 5-dihydroxy-ph aromatic resid resistance; ch	tcp gene cluster	04	ADS73531 standard; XX AC ADS73531:	273 726
/*cag= 1 /label= 0RF9 /note= "Required for synthesis of the heptapeptide skeleton"	<pre>/*cag= n /label= ORF8 /note= "Required for the addition and formation of N-acyl -beta-glucosamine residues" 1059716827</pre>	/ "cay" y /label= ORF7 /note= "Required for regulatingexpression of one or more of the genes of tcp gene cluster" 892410105	/label= ORF6 /note= "Required for export of teicoplanin outside of the cytoplasm, and for coferring resistance to teicoplanin and required for regulatingexpression of one or more of the genes of tcp gene cluster" complement (73858065)	/*Lay= e /label= ORF5 /label= ORF5 /note= "Required for export of teicoplanin outside of the /vtoplasm, and for coferring resistance to teicoplanin" complement(6286, .7377) /*tag= f	0 B = 11	. e		3 H & = "	Location/Qualifiers 6521995 /*tag= a	teichomyceticus; ATCC31121.	<pre>resistance; cclorination; alpha-hydroxylation; glycopeptide; telcoplanin; shiplottor; bal; cep; com; sta; 4-hydroxy-phenylglycine; 3; 5-dihydroxy-phenylglycine; heptapeptide skeleton; cross-linking; aromatic residue; N-acyl-beta-D-glucosamine; core structure; export; resistance; chlorination; alpha-hydroxylation; mannosyl attachment.</pre>	01.	(first entry)	lard; cDNA; 73882 BP.	GATGAGCCGGGAGACCCTGACGGCCGAGGACCGGCGG 309
/label= ORF24 /note= "Required for the ad -beta-glucosamine residues" CDS 5294854540		• p) p- =	/label= ORF21 /note= "Required residues" CDS 4916650344 /*tag= v /label= ORF22	/label= ORF20 /note= "Required atposition 2 and tricoplanin" CDS 4748449004 /*tag= "	/note= "kequired atposition 2 and teicoplanin" 4603847234 /*tag= t		CDS 41896. 44871 /tag= r /tabe= ORF18 /labe= ORF18 /note= "Required atposition 2 and	/label= ORF16 /note= "Require /note= "Require cytoplasm, and 43373. 43885 /*tag= q	/label= Ukri5 /note= "Required CDS 4134343289 /*tag= p		/*tag= m /label= ORF13 CDS 3840139222 /*tag= n /label= ORF14	cDS 3788638095	/tag= 1 /label= ORF12 /note= "Regnired	/*tag= /label= /note= " skeleton	CDS 1682420009 /*tag= j /label= ORF10 /label= "Required skeleton" 2005332256

```
á
                           밁
                                          ঠ
                                                                                               Query Match
Best Local Similarity
Matches 150; Conserv
                                                                                                                                                                                                                                                               CDS
                                                                                                                                          Sg
                                                                                                                                                                                           Sas
                                                                                                                                                                                                                                                                                                          gg
                                                                                                                                                                                                                                                                                                                                                     Sg
                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                         Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sg
                           29713
         61
CTCCTGGACACGGTGCGGCGCCGCATCGGCTGTCCGCATCGCGCGTACAAGTCC
                           ATCACCGCGCCGATCGCGCAGCGGGTACGGTTCGGGCTCGACGACGAGCTGAGCCGG
                                           ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                           17.5%;
milarity 48.5%;
Conservative
                                                                                                                                                                                                                                                                   /label= ORF33
/note= "Required f
phenylglycine resi
                                                                                                                                                                                                                                                                                                               /label= ORF32
/note= "Required i
phenylglycine resi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag= aa
/label= ORF27
58746. .59735
                                                                                                                                                                                                                                                                                                                                                                                                 /label= ORF37
/note= "Required for syn
phenylglycine residues"
71318. .72412
                                                                                                                                               /label= ORF36
/note= "Required for synthesis of the 4-hydroxy-
phenylglycine residues, and required for synthes
3,5-dihydroxy-phenylglycine residues"
                                                                                                                                                                                                                                                                                                                                                         /*tag= ae
/label= ORF31
/note= "Required for synthesis
phenylglycine residues"
                                                                                                                                                                                                                                                                                                                                                                                                                                     /note= "Required for regulatingexpression
of the genes of tcp gene cluster"
63036 . 64157
                                                                                                                                                                                                                   68349. .68945
                                                                                                                                                                                                                            cytoplasm,
                                                                                                                                                                                                                                                                66991
                                                                                                                                                                                                                                                                                                        66146. .66952
                                                                                                                                                                                                                                                                                                                                                  64816. .66117
                                                                                                                                                                                                                                                                                                                                                                                              64154. .64819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of the genes
60477. .62855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56924. .57979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54757. .56553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note= "Required
residues"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= ab
/label= ORF28
                                                                                                                                                                                          label= ORF35
9083. .70180
                                                                                                                                                                                                                                   note= "Required
                                                                                                                                                                                                                                              label= ORF34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                'label= ORF29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note= "Required for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               label= ORF26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag= y
/label= ORF25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note= "Required
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            beta-glucosamine
                                                             0
                                                           Score 54.6; DB 13;
Pred. No. 0.31;
0; Mismatches 159;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of.
                                                                                                                                                                                                                                                                      red for synthesis residues"
                                                                                                                                                                                                                                                                                                                  red for synthesis of the residues"
                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tcp
                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for the addition and formation of N-acyl residues"
                                                                                                                                                                                                                           or export of teicoplanin coferring resistance to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          r regulatingexpression gene cluster"
                                                                                                              synthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the beta-hydroxylation of the
                                                                                                               Ģ,
                                                                                                                                                                                                                                                                               о
F
                                                                                                                                                                                                                                                                                                                                                                    얁
                                                                                                                                                                                                                                                                                                                                                                                                              of.
                                                                                                               the
                                                                                                                                                                                                                                                                               the
                                                            Indels
                                                                            Length 73882
                                                                                                                                                                                                                                                                                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                               the
                                                                                                                                                        for synthesis of
                                                                                                               4-hydroxy
                                                                                                                                                                                                                                                                              3,5-dihydroxy
                                                                                                                                                                                                                                                                                                                          3,5-dihydroxy-
                                                                                                                                                                                                                                                                                                                                                                    3,5-dihydroxy-
                                                                                                                                                                                                                                                                                                                                                                                                              3,5-dihydroxy-
                                                                                                                                                                                                                                                                                                                                                                                                                                                       e
f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   õ.
                                                                                                                                                                                                                           outside of the teicoplanin"
                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                        one
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   one
                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ïyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                        more
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   more
         120
                           29772
                                            60
                                                            0
```

```
RESULT 13
AAQ64204
ID AAQ64
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð. B
                                                                                                                                               DNA involved in streptogramin antibiotic biosynthesis - for -conversion of streptogramin(s) or prodn. of streptogramin i derivs. or hybrid antibiotics.
                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                Blanc V,
                                                                                                                            Claim 2; Page 54-55; 83pp; French.
                                                                                                                                                                                         P-PSDB;
                                                                                                                                                                                                  WPI; 1994-128286/16.
                                                                                                                                                                                                                      Zagorec M;
                                                                                                                                                                                                                                                                        25-SEP-1992;
                                                                                                                                                                                                                                                                                          25-SEP-1992;
                                                                                                                                                                                                                                                                                                               01-APR-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                 biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAQ64204 standard; cDNA; 1208 BP.
                                                                                                                                                                                                                                                                                                                                   FR2696189-A1
                                                                                                                                                                                                                                                                                                                                                                                                                          Antibiotic;
                                                                                                                                                                                                                                                                                                                                                                                                                                             snaC gene encoding enzyme in streptogramin biosynthetic pathway.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25-MAR-2003
18-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAQ64204;
                                                                                                                                                                                                                                                    (RHON ) RHONE POULENC RORER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29773 CGCCTGGTGCGGTTCACCCGCCGCCACGGCGTCACGATGAACACCCTCTTCCAGGGGATC 29832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                          AAR54204.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCCTGACGGCCGAG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGGGCGGCCCGCGAGATCCCCCGGCGTCGGGTCCGTGGTCGGGCTGTTCATGAACACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGTCGTTGCTGGCCCGGCTGACCGGCCGACGACGTGGTCTTCCGCTTCCGCCGTG
                                                                                                                                                                                                                                Blanche F,
                                                                                                                                                                                                                                                                                                                                                                                                               streptogramin; snaA; snaB; snaC; biosynthesis; enzyme; pathway; Streptomyces pristinaespiralis; ds.
                                                                                                                                                                                                                                                                                                                                                                                             pristinaespiralis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (revised)
(first entry)
                                                                                                                                                                                                                                                                        92FR-00011441
                                                                                                                                                                                                                                                                                            92FR-00011441
                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
1. .1209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30021
                                                                                                                                                                                                                                Crouzet J,
                                                                                                                                                                                                                                                    SA.
                                                                                                                                                                                                                                Jacques N,
                                                                                                                                                                                                                                Lacroix P,
                                                                                                                                                                                                                                Thibaut
                                                                                                                                                           intermediates
                                                                                                                                                                                                                                D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29892
```

The snaC gene product is involved in the biosynthesis of streptogramins, antibiotics active against Gram-positive bacteria. The identification of the sequences encoding the enzymes involved in the biosynthetic pathway means that they can be isolated and manipulated. Mutant microorganisms in which a step in the streptogramin biosynthetic pathway is blocked can be cultured to produce streptogramin intermediates, which may later be

. be

or r

converted to streptogramin derivatives. Recombinant cells may also be used for the bioconversion of streptogramins from one form to another for the production of hybrid antibiotics. (Updated on 25-MAR-2003 to correct PN field.)

Sequence 1208 BP;

190 A;

500 C;

360

G; 158

T; 0 U; 0 Other

Length 1208;

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
Matches 135; Conserv
         in the biosynthesis of streptogramins, antibiotics active against Grampositive bacteria. The identification of the sequences encoding the enzymes involved in the biosynthetic pathway means that they can be isolated and manipulated. Mutant microorganisms in which a step in the streptogramin biosynthetic pathway is blocked can be cultured to produce streptogramin intermediates, which may later be converted to streptogramin derivatives. Recombinant cells may also be used for the bioconversion of streptogramins from one form to another or for the
                                                                                                                                                  DNA involved in streptogramin ar -conversion of streptogramin(s) derivs. or hybrid antibiotics.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-MAR-2003
18-NOV-1994
  production
                                                                                                                           Disclosure; Page 44-47; 83pp; French.
                                                                                                                                                                                                 WPI; 1994-128286/16
                                                                                                                                                                                                                       Zagorec
                                                                                                                                                                                                                                    Blanc V
                                                                                                                                                                                                                                                                               25-SEP-1992;
                                                                                                                                                                                                                                                                                                      25-SEP-1992;
                                                                                                                                                                                                                                                                                                                              01-APR-1994.
                                                                                                                                                                                                                                                                                                                                                                         Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                           Antibiotic;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAQ64201
                                                                                                                                                                                                                                                          (RHON ) RHONE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1040
                                                                                                      sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38
                                                                                                                                                                                                                        3
                                                                                                                                                                                                                                                                                                                                                                                                                                 comprising the snaA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCTGTTCGTCGAGACGTTCGGCACCGGCACCGTCGCCCAGGAGCGCATCGAGAAGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCTGGTCAAGGACAGGGCCGCCCGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCTCGCCTCCCGCTGCGAGGTCCAGGTCGCCTACGCCATCGGCAAGGCCGAGCCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGTCGACCGTTCCGCCGCGTACGCGATGCGCTGGGTCGCCAAGAACGTCGTCGCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGGGAGAGCCTGACGGCCGAGGACCGGC 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCACCGAGGTCTTCGACCTGCGCCCCGCGGCCATCATCCGCGACCTCGACCTGCTGCGGC 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGA
                                                                                                                                                                                                                                   Blanche
                                                                                                                                                                                                                                                                                                                                                                                               streptogramin;
pathway; Strep
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                         pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                        (revised)
(first entry)
 of streptogramins hybrid antibiotics
                                                                                                     comprises the snaA, snaB and snaC genes which are involved
                                                                                                                                                                                                                                                        POULENC
                                                                                                                                                                                                                                                                                                      92FR-00011441
                                                                                                                                                                                                                                                                                92FR-00011441
                                                                                                                                                                                                                                   '11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17.3%;
  antibiotics.
                                                                                                                                                                                                                                   Crouzet
                                                                                                                                                                                                                                                          RORER
                                                                                                                                                                                                                                                                                                                                                                                              Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5392
                                                                                                                                                                                                                                                                                                                                                                                                          snaA; snaB;
                                                                                                                                                                                                                                                          SA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 54;
Pred. No.
                                                                                                                                                                                                                              Ü
                                                                                                                                                             antibiotics) or prodn.
                                                                                                                                                                                                                                                                                                                                                                                                                                 snaB and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
  (Updated
                                                                                                                                                                                                                                  Jacques
                                                                                                                                                                                                                                                                                                                                                                                               pristinaespiralis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2,
0.58;
%s 135;
                                                                                                                                                                                                                                                                                                                                                                                                                                 snaC
                                                                                                                                                                                                                                                                                                                                                                                                          snaC;
                                                                                                                                                              biosynthesisof streptogr
                                                                                                                                                                                                                                  z
  g
                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                            synthesis - for streptogramin i
                                                                                                                                                                                                                                                                                                                                                                                                          biosynthesis;
                                                                                                                                                                                                                                   Lacroix
                                                                                                                                                                                                                                                                                                                                                                                                                                  cluster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                   ָש
  ő
                                                                                                                                                                                                                                   Thibaut
                                                                                                                                                              intermediates,
                                                                                                                                                                                                                                                                                                                                                                                                          enzyme;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
  correct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                   Ö
  Ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            919
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SXC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                               28-MAR-2001; 2001US-0279095F
30-MAR-2001; 2001US-0279709F
20-APR-2001; 2001US-0285214P
                                                                    Claim
                                                                                                                      P-PSDB;
                                                                                                                             WPI; 2003-058435/05
                                                                                                                                                                                                                  28-MAR-2002; 2002WO-CA000432
                                                                                                                                                                                                                                    10-OCT-2002
                                                                                                                                                                                                                                                                     Streptomyces mobaraensis
                                                                                                                                                                                                                                                                                     Orthosomycin;
                                                                                                                                                                                                                                                                                                      Orthosomycin
                                                                                                                                                                                                                                                                                                                       21-MAR-2003
                                                                                                                                                                                                                                                                                                                                        ABZ66725;
                                                                                                                                                                                                                                                                                                                                                        ABZ66725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            field.)
                                                                                         Identifying orthosomycin biosynthetic gene, cluster, by detecting presence of nucleic a
                                                                                                                                               Farnet
                                                                                                                                                                                                                                                    WO200279505-A2
                                                                                                                                                                (ECOP-)
                                                                                    ō,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4417
                                                                                                                                                                                                                                                                                                                                                                                                                                    4597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4537
                                                                                                                                                                                                                                                                                                                                                                                                   4657 CCATCTACGCCGCCACCGCCGCCTACGGCC
                                                                   12;
                                                                                   flambamycins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                               ź
                                                                                                                      ABP99262.
                                                                                                                                                                ECOPIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                         standard;
                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGGAGAGCCTGACGGCCGAGGACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                     TCACCGAGGTCTTCGACCTGCGCCCCGCGGCCATCATCCGCGACCTCGACCTGCTGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTTGGTGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCTGTTCGTCGAGACGTTCGGCACCGGCACCGTCGCCCAGGAGCGCATCGAGAAGGCCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCTGGTCAAGGACAGGGCCGCCGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCTCGCCTCCCGCTGCGAGGTCCAGGTCGCCTACGCCATCGGCAAGGCCGAGCCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGTCGACCGTTCCGCCGCGTACGCGATGCGCTGGGTCGCCAAGAACGTCGTCGCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5392 BP;
                                                                   Page
                                                                                                                                               Zazopoulos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                      biosynthetic polynucleotide
                                                                                                                                                                                                                                                                                                                       (first
                                                                                                                                                                                                                                                                                     biosynthesis;
                                                                   266;
                                                                                                                                                                BIOSCIENCES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           811 A;
                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                         DNA;
                                                                   511pp; English.
                                                                                                                                                                                                                                                                                                                       entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17.3%;
                                                                                                                                               Ħ
                                                                                                                                                                                                                                                                                                                                                        837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2161
                                                                                     families.
                                                                                                                                               Staffa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                         쁌
                                                                                                                                                                                                                                                                                       everninomicin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; 1671 G;
                                                                                             of nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                   4686
                                                                                                                                                                                                                                                                                                                                                                                                                   307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           749
                                                                                                                                                                                                                                                                                                      SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  51;
                                                                                                                                                                                                                                                                                      avilamycin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           135;
                                                                                                    gene fragment or
                                                                                                                                                                                                                                                                                                       Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                            sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
U;
                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0 Other;
                                                                                                                                                                                                                                                                                     gene;
                                                                                           corresponding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                       gb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                     4656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4476
                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                      277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

The invention relates to identifying orthosomycin biosynthetic genes its fragment/gene cluster (ABZ66670-ABZ666813), comprising detecting presence of a nucleic acid sequence coding for a polypeptide (ABP9920 ABP99362). The method is useful for identifying an orthosomycin biosynthetic gene, gene fragment or gene cluster, especially an everninomicin-type or avilamycin-type orthosomycin biosynthetic gene, gene fragment or gene states. The method is useful for detecting the

(ABP99207-

and the

```
Search completed: October 4, 2005, 21:38:06 Job time: 191.488 secs
                                                                      밁
                                                                                                   ફ
                                                                                                                              В
                                                                                                                                                                  Ś
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                      뭉
                                                                                                                                                                                                                                                                                                                                                                                 र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            នន្តន្តន្តន្តន្ត
                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       presence of any organism that contains DNA for the production of orthosomycins (both everninomicin-type orthosomycins and avilamycin-type orthosomycins) regardless of the level at which genes for orthosomycin production are expressed by the organism or the amount of orthosomycin produced by the organism. This allows for the detection of new orthosomycin natural products, not produced by the organism
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 837 BP; 105 A; 329 C; 308 G; 95 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
res 147; Conservat
                                                                                        268 CTGGTGATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCGG
                                                                                                                                      331 AGCGCCCTGCCGGACGGCTCGTTCGACGGGATCCTCTC----CACCCAGGTCCTGGAG 384
                                                                                                                                                           208 GAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCCGCGTCGAGGAC 267
                                                                                                                                                                                                            271
                                                                                                                                                                                                                                               148
                                                                                                                                                                                                                                                                            211 GACTICGGCGCCGGCACGTCGCCCTACCGCGGCGTGCTCCCGGGCGCCGGAGCTGGAGACC 270
                                                                                                                                                                                                                                                                                                                                                385 CACGTGACGGACCCGGACACCCTGCGGGAGGCCCTCCGG
                                                                                                                                                                                                                                                                                                                  88
                                                                                                                                                                                                                                                                                                                                                                                     GACCTCGGTGTCCGCATCGCGCGGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCC 147
                                                                                                                                                                                                                                                                                                                                                                                                                   17.2%; Score 53.6; DB 10; Length 837; ilarity 52.1%; Pred. No. 0.71; Conservative 0; Mismatches 129; Indels 6
                                                                    426
                                                                                                     309
                                                                                                                                                                                                                                                                                                                                                                                                                       6;
                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
```

loigzu) ^{Muoleg} 9009 zint

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Post-processing:
                                                                                                                                                                                           ი
                                                                                                                                                                                                                         ი
                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9:
    score
and is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88
                                                                                                                                                                                         135.6
135.6
135.6
54.6
54.6
54.6
54.6
54.2
                                                                                                                                                                                                                                                                                                  Score
  52.8
52.8
51.2
51.2
51.2
51.2
51.2
51.2
51.2
                                                                                                                                                                                                                                                                                                                                                      19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                     greater t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                   is the number of results predicted by chance to have a ater than or equal to the score of the result being printed, rived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-3
312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         October 4, 2005, 21:04:23; Search time 57.8815 Seconds (without alignments) 8820.059 Million cell updates/sec
                                                                                                                                                                                                                                                                                                  Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1202784 seqs, 818138359 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IDENTITY_NUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
 Issued_Patents NA:*

1: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*

2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*

3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*

4: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*

5: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                atgaccgagcagaacgagct.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Copyright
  GenCore version (c) 1993 - 2005
                                                                                                                                                                                                                                                                                                  DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gapext 1.0
US-08-765-907A-4
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-987-614A-1
US-09-925-991A-11423
US-09-925-991A-11420
US-09-902-540-2740
US-09-902-540-1129
US-09-93-31-818-4
US-09-635-3598-4
US-09-635-3598-1
US-09-635-3598-1
US-09-635-3598-1
US-09-252-991A-8175
US-09-252-991A-8175
US-09-252-991A-8074
US-09-925-40-9323
US-09-925-40-9323
US-09-935-541-1
US-09-935-541-1
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
US-09-935-541-3
                                                                                                                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.1.6
Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cggccgaggaccggcggtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2405568
                                                                                                                                                                                                                                                                                                 Description
                    Sequence
Sequence
                                                                       Sequence
Sequence
                                                                                           Sequence
Sequence
Sequence
                                                                                                                                     Sequence
Sequence
Sequence
                                                                                                                                                                                                                       Sequence
Sequence
                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                  Sequence
                                         Sequence
                                                   Sequence
                                                                                                                           Sequence
                                                                                                                                                                             Sequence
                                                                                                                                                                                        Sequence
                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                           Sequence
         4, Appli
4, Appli
4, Appli
1, Appli
1, Appli
1, Appli
1, Appli
1, Appli
1, Appli
8175, Ap
8275, Ap
9323, Appli
1, Appli
                                                                                                                                                                                        4, Appli
4, Appli
1, Appli
1, Appli
11493, A
11470, A
2740, Ap
1129, Ap
```

			a			a			a				a				
45	44	43		41	40		38	37		3 5	34	33		31	30	29	28
48.6	48.6	48.6	48.6	48.8	48.8	49	49	49.4	49.4	49.4	49.8	49.8	50.4	50.4	50.8	50.8	50.8
15.6	15.6	15.6	15.6	15.6	15.6	15.7	15.7	15.8	15.8	15.8	16.0	16.0	16.2	16.2	16.3	16.3	16.3
1410	1233	960	804	962	348	34953	1341	27490	8914	2589	1050	750	12730	1695	2961	2961	2670
4.	4	4	4	4	4	4	4	4	4	4	4	4	4	4.	w	N	ω
US-09-252-991A-16033	US-09-252-991A-16145	US-09-252-991A-4705	US-09-252-991A-4814	US-09-270-767-11250	US-09-270-767-26794	US-09-902-540-1263	US-09-902-540-5418	US-09-902-540-1227	US-09-902-540-915	US-09-902-540-4601	US-09-252-991A-12884	US-09-252-991A-12577	US-09-902-540-1029	US-09-902-540-4319	US-09-277-858-1	US-08-407-875-1	US-09-126-280-1
Sequence 16033, A	Sequence 16145, A	Sequence 4705, Ap	Sequence 4814, Ap	Sequence 11250, A	Sequence 26794, A	Sequence 1263, Ap	Sequence 5418, Ap	Sequence 1227, Ap	Sequence 915, App	Sequence 4601, Ap	Sequence 12884, A	Sequence 12577, A	Sequence 1029, Ap	Sequence 4319, Ap	Sequence 1, Appli	Sequence 1, Appli	Sequence 1, Appli

ALIGNMENTS

```
APPLICANT: FAMECHON, Alain
APPLICANT: PARTS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method For Preparing Sam
TITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
NUMBER-OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 4
FENCHM: 1877
                                            В
                                                                    S
                                                                                                       밁
                                                                                                                           Ş
                                                                                                                                                               밁
                                                                                                                                                                                           Ś
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                US-08-765-907A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-765-907A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 4, Application Patent No. 6352839
                                                                                                                                                                                                                                                                                     Matches 183;
                                                                                                                                                                                                                                                                                                   Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                 LENGTH: 387
TYPE: DNA
ORGANISM: Streptomyces pristinaespiralis
                  254
                                            239
                                                                           194
                                                                                                       179
                                                                                                                                   134
                                                                                                                                                                  119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION:
                                                                                                                                                                                            74
                                                                                                                                                                                                                          59
                                                                                                                                                                                                                                         14 ACGAGCTGCAGCGCGCGCGGAGCTCCGACGCCCTCGACGGGACGCTCCTGGACACGG
                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BLANCHE, Francis
COUZET, Joel
BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
GCCGCGTCGAGGACCTGGTGAT
                                                                     ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGT
                                                                                                                        TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC
                                                                                                                                                                                           recescececarcacerecesers
                                              ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCT
                                                                                                      CGATGATGCAGCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCTACGCCGCCG
                                                                                                                                                                                                                           ACCCCCTCGACGCGCGCGCCCGCCTGGACGCCGGACGCCGCCCTGCTGGACGCCG
                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                              43.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08765907A
                                                                                                                                                                                                                                                                                  Score 135.6; DB 3;
Pred. No. 6.3e-21;
0; Mismatches 79;
                                                                                                                                                                                                                                                                                                                 DB 3;
                                                                                                                                                                                                                                                                                                               Length 387;
                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Same
                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ву
                                                                                                                                                                                            133
                                                298
                                                                           253
                                                                                                       238
                                                                                                                                   193
                                                                                                                                                                  178
                                                                                                                                                                                                                          118
                                                                                                                                                                                                                                                                                     0
```

밁

GCCGCCTCGAGGACGAGTGGAT 320

```
RESULT 3
US-08-765-907A-1
                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 2
US-09-987-614A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TYPE: DNA
; ORGANISM: Streptomyces pristinaespiralis
US-09-987-614A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 43.3
Best Local Similarity 69.8
Matches 183; Conservative
                                                               APPLICANT: BLANC,
APPLICANT: THIBAG
APPLICANT: BAMAS-I
APPLICANT: BLANCH
APPLICANT: COUZET
APPLICANT: BARRIE
                                                                                                                                                                    Sequence 1, Application Patent No. 6352839 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 4, Application US/09987614A Patent No. 6833382 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: BAMAS-JACQUES, Nathalie
                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: PARTS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method
TITLE OF INVENTION: Mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 387
                                                                                                                                                                                                                                                                                                                           254
                                                                                                                                                                                                                                                                                                                                                             239
                                                                                                                                                                                                                                                                                                                                                                                              194
                                                                                                                                                                                                                                                                                                                                                                                                                                179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     59
                                                                                                                                                                                                                                                                                                               GCCGCGTCGAGGACCTGGTGAT 275
                                                                                                                                                                                                                                                                                                                                                                              ACCACGGCCTCGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGAGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGTACAAGTCCCCGGCACGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCCCCTCGACGCGCTGCGCGCCCCCCCTGGACGCCGGACGCCGCCCTGCTGGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGAGCTGCAGCGGCGCGCGGAGCTCGACGCCCTCGACGGGACGCTCCTGGACACGG
                                                                                                                                                                                                                                                                                                                                                           ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                           CGATGATGCAGCCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCCCGCTACGCCGCCG
                                                                                                                                                                                                                                                                                         GCCGCCTCGAGGACGAGTGGAT 320
                              BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                 BLANCHE, Francis
COUZET, Joel
                                                                                                               THIBAUT, Denis
BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BLANCHE, Francis
COUZET, Joel
DUTRUC-ROSSET, Gilles
                                                                                                                                                    Veronique
                 Jean-Marc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43.5%;
                                                                                                                                                                                                      US/08765907A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 135.6; DB 4;
Pred. No. 6.3e-21;
0; Mismatches 79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           For Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 387;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ву
                                                                                                                                                                                                                                                                                                                                                                                            253
                                                                                                                                                                                                                                                                                                                                                                                                                              238
                                                                                                                                                                                                                                                                                                                                                                                                                                                              193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   73
```

Ś

14 ACGAGCTGCAGCGGCGCGCGCGGAGCTCGACGCCCTCGACGGGACGCTCCTGGACACGG 73

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; LENGTH: 2888
; TYPE: DNA
; ORGANISM: Streptomyces pristinaespiralis
US-08-765-907A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                      US-09-987-614A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-987-614A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: Streptogramins And Method For Preparing Same TITLE OF INVENTION: Mutasynthesis FILE REFERENCE: Streptogramin genes CURRENT APPLICATION NUMBER: US/08/765,907A CURRENT FILING DATE: 1997-03-20 NUMBER OF SEQ ID NOS: 17 SOFTWARE: Patentin Ver. 2.0 SEQ ID NO 1
                                                                                   SOPTWARE: PatentIn Ver. 2.0
SEQ ID NO 1
LENGTH: 2888
TYPE: DNA
ORGANISM: Streptomyces pristinaespiralis
                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/09987614A Patent No. 6833382
 Matches 183;
                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: BLANC,
APPLICANT: THIBAG
APPLICANT: BAMAS-
APPLICANT: BLANCH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                       APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method
TITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
                                                                                                                                                                        PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1991 TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1931 ACCCCCTCGACGCCGCCCGCCCTGGACGCCGGACGCCGCCCTGCTGGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    194 ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        134 CGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGCCGCCGCCGCTACGCCGC 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14 ACGAGCTGCAGCGGCTGCGCGGGAGCTCGACGCCTCGACGGGACGCTCCTGGACACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           74 TGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGTACAAGTCCCCGGCACGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGCGTCGAGGACCTGGTGAT 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGCCTCGAGGACGAGTGGAT 2192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        THIBAUT, Denis
BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                    BLANCHE, Francouzer, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                   Francis
                  43.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               43.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>.</u>
0,
                  Score 135.6; DB 4
Pred. No. 7.5e-21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 135.6; DB 3
Pred. No. 7.5e-21;
 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 3;
                                                                                                                                                                                                                                                                                               For Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  79;
                                Length 2888;
 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2888;
<u>..</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΒĄ
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73
```

```
RESULT 6
US-09-252-991A-11423/c
US-09-252-991A-11423/c
; Sequence 11423, Application
; Patent No. 6551795
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 5
US-09-252-991A-11493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                  용
                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                १
                                                                                                                                                                                   밁
                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; TYPE: DNA
; ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-11493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILLING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 11493
LENGTH: 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 11493, Application US/09252991A Patent No. 6551795
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMING
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               134
                                                                                                                                                     273
                                                                                                                                                                                   329
                                                                                                                                                                                                                  213
                                                                                                                                                                                                                                                    269
                                                                                                                                                                                                                                                                                   153
                                                                                                                                                                                                                                                                                                                   209
                                                                                                                                                                                                                                                                                                                                                                                   149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                254
                                                                                                                      389
                                                                                                                                                                                                                                                                                                                                                 93
                                                                                                                                                                                                                                                                                                                                                                                                                33 CGCGGAGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCCATCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                    TCGCGACCTGTTCCTGCGCGGGCTTCGACCGCAGCGTCCGCGAGCATCTGCGCGACGAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGCGTCGAGGACCTGGTGAT 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGATGATGCAGCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCGCCTACGCCGCCG
                                                                                                                      CGATGGCAGCCTGGCCGCGACCCTCAAGGACGGCCGG
                                                                                                                                                   GATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCGG 309
                                                                                                                                                                                                                                                                                   CGGTGTCCGCATCGCGCGGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                   CGAAGCGTTCTTCCTCGAGCGCCTGCCGCGCGCCGCATGCTGGTGGTCGGCGGCGGCGGCTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MARC J. Rubenfield et al.

VENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS

VENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGCCTCGAGGACGAGTGGAT 2192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCACGGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACGATCATCACCGAGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCGCACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCGGCGCCATCGACCTCGGTGTCCGCATCGCGCGTACAAGTCCCGGCACGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGCAAGAAGGGCCTGGACCTGCAGTTCAACAGCGACATCGCCCGTATCGACAAACAGGC
                                                                                                                                                                                                                ett congeneración de la constanción de
                                                                                                                                                                                                                                                                                                                   CGCCGTCGAGTTCGCCTCGATCTTCAACGGGCTCGGCGCCCGAGACCACCTTGCTCTACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                17.5%;
                                       US/09252991A
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,:
                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 54.6; DB 4
Pred. No. 0.0029;
0; Mismatches 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4; Length 507;
                                                                                                                      425
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2050
                                                                                                                                                                                                                                                  328
                                                                                                                                                                                                                                                                                   212
                                                                                                                                                                                                                                                                                                                                                 152
                                                                                                                                                                                                                                                                                                                                                                                  208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1990
                                                                                                                                                                                                                    272
                                                                                                                                                                                                                                                                                                                   268
                                                                                                                                                                                                                                                                                                                                                                                                                92
     á
                                     밁
                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-252-991A-11470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                    US-09-252-991A-11470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-252-991A-11423
                                                                                                    Matches 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Si
Matches 138;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                928
                                       486
      93
```

```
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 11470
LENGTH: 1371
TYPE: DNA
ORGANISM: Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO 11423
LENGTH: 1359
TYPE: DNA
ORGANISM: Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 11470, Application US/09252991A Patent No. 6551795
                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS FILE REPERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR PRIOR DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID
TITLE OF INVENTION: ABRUGINOSA FOR DIAGNOSTICS A
FILE REFERENCE: 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 273 GATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              808 TCGCGACCTGTTCCTGCGCGGCTTCGACCGCAGCGTCCGCGAGCATCTGCGCGACGAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153 GGTCAGCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGCCGACCACGACGAATC
                                                                                                                   33 CGCGGAGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    33 CGCGGAGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
GGTGTCCGCATCGCGCGGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCG
                                                                            CGAAGCGTTCTTCCTCGAGCGCCTGCCGCGCCGCCATGCTGGTGGTCGGCGGCGGCTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGATGGCAGCCTGGCCGCGACCCTCAAGGACGGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGGCAAGAAGGGCCTGGACCTGCAGTTCAACAGCGACATCGCCCGTATCGACAAACAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCCGTCGAGTTCGCCTCGATCTTCAACGGGCTCGGCGCCGAGACCACCTTGCTCTACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGTGTCCGCATCGCGCGCACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGAAGCGTTCTTCCTCGAGCGCCTGCCGCGCCGCATGCTGGTGGTCGGCGGCGGCTACAT
                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                         17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17.5%;
                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                           Score 54.6; DB 4
Pred. No. 0.0031;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 54.6; DB 4
Pred. No. 0.0031;
                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     139;
                                                                                                                                                                                                                 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCES RELATING AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    309
                                                                                                                                                                                                               Length 1371;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1359;
                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                     <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TO PSEUDOMONAS
                             152
                                                                            545
                                                                                                                        92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      92
                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
Patent No. 6833447

GENERAL INFORMATION:
APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Wiegand, Roger C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION MYXOCOCCUS Xanthus Genome Sequences and Uses Thereof FILE REFERENCE: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT APPLICATION NUMBER: 60/217,883
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2001-07-10
NUMBER OF SEQ ID NOS: 16825
SEQ ID NO 2740
LENGTH: 1963
TYPE: DNA
Sequence 1129, Application US/09902540
PRICENT NO. 6833447
GENERAL INFORMATION:
APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Wiegand, Roger C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Ge
FILE REFERENCE: 38-10(15849)B
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Myxococcus xanthus US-09-902-540-2740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                       US-09-902-540-1129/c
                                                                                                                                                                                        RESULT 9
                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 8
US-09-902-540-2740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 125;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2740,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGGCTCGACGCACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                ATC 243
                                                                                                                                                                                                                                                                                    ATC
                                                                                                                                                                                                                                                                                                                       ACCCGCGCGCGCAGCACGGCCTGGACCCGCACGAGGTGGAGCGCATCTGGCGGCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                GCCGCCGCGCGCCTTCCGGGACCAGCGCCGCGAGGACCTGCTCCTGCGCCCCATCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGATGGCAGCCTGGCCGCGACCCTCAAGGACGGCCGG 762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCGG 309
                                                                                                                                                                                                                                                                                                                                                           CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATCCTCGATGCCCTCCGCCGCCGGATGGCGCTGGCCGGACGACGTCGCCCCGGGCGAAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCGCGACCTGTTCCTGCGCGGCTTCGACCGCAGCGTCCGCGAGCATCTGCGCGACGAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGACCACCCTCCCCGACCTCGACCTCATCCGGACCTCCATCGAGCGCATCGACGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGCAAGAAGGGCCTGGACCTGCAGTTCAACAGCGACATCGCCCGTATCGACAAACAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCGTCGAGTTCGCCTCGATCTTCAACGGGCTCGGCGCCGAGACCACCTTGCTCTACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17.4%;
ilarity 51.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/09902540
                                                                                                                                                                                                                                                                                    243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 54.2; DB 4; Pred. No. 0.0039;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches 118;
                       Genome Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1963;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                       and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         665
                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 10
US-08-403-852D-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Myxococcus xanthus US-09-902-540-1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
NUMBER OF SEQ ID NOS: 16825
SEQ ID NO 1129
LENGTH: 15689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 4, Application US/08403852D Patent No. 5891695
             COMPUTER READ,BLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Ve
CURRENT APPLICATION DATA:
APPLICATION UNMBER: US/08/403,852D
FILING DATE: 10-MAY-1995
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
FILING DATE: 25-SEP-1993
FILING DATE: 25-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Zagorec, NAPPLICANT: Debussche, APPLICANT: De Crecy-ITITLE OF INVENTION: ITITLE OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, Henderson, Farabow,
STREET: 1300 I Street, N.W., Suite 700
 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                        STATE: D.C.
                                                                                                                                                                                                                          ZIP:
                                                                                                                                                                                                                                                                              STREET: 1300 I STREET: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Match 17.4%;
Local Similarity 51.4%;
Les 125; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7804 ATC 7802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                            20005-3315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATC 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                Crouzet, Joel
Jacques, Nathalie
Lacroix, Patricia
Thibaut, Denis
Zagorec, Monique
Debussche, Laurent
                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                       De Crecy-Lagard, Valerie
NVENTION: Polypeptides Involved In The
NVENTION: Biosynthesis Of Streptogramins,
VENTION: Coding For These Polypeptides Av
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Blanche, Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lanc,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Veronique
                                                                                                                                                                                                                                                                                                                                                         3
                                      PCT/FR 93/00923
                                                                                          US/08/403,852D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                Version
```

And

Nucleotide Sequences nd Their Use

```
8044 ÁTGACCACCCTCCCGÁCCTCGÁCCTCATCCGGACCTCCATCGÁGCGCATCGÁCGAGGAG
                                                                                              7924 GCCGCCGCCGCCTTCCGGGACCAGCGCCGCGAGGACCTGCTCCTGCGCCGCATCCGC
                                                                                                                                                                                                                                                                                                                                  1 ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCTCGACGGGACG
                                                                                                                                                                                          ATCCTCGATGCCCTCCGCCGCCGGATGGCGCCTGGCGGACGACGTCGCCCCGGGCGAAGCTG
ACCCGCGCGCGGAGCACGGCCTGGACCCGCACGAGGTGGAGCGCATCTGGCGGCTCTTC
                                  CGCTACGCCGCCGACCACGGCCTCGACGACTCGTTCCTGGTGAACCTTCTACGACGTGATC
                                                                                                                                        CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                    crccreeacacegrecececarceaccrceerercecarcececarcecegracaaerce
                                                                                                                                                                                                                                                                                                                                                                                                          Score 54.2; DB 4
Pred. No. 0.0048;
                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4;
                                                                                                                                                                                                                                                                                                                                                                                    118;
                                                                                                                                                                                                                                                                                                                                                                                                                              Length 15689;
                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                    Gaps
7805
                                                                                              7865
                                                                                                                                          180
                                                                                                                                                                                          7925
                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                        7985
                                               240
                                                                                                                                                                                                                                                                                                                                     60
```

0,

```
RESULT 11
US-08-510-646B-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-403-852D-4
                                                                                                                                                                                                                                                                                                                                                Patent No.
                                                                                                                                                                                                                                                                                                                                                  Sequence 4, Application US/08510646B Patent No. 6077699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (202) 408-440
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                     APPLICANT: Thibaut, Denis
APPLICANT: Zagorec, Monique
APPLICANT: Debussche, Laurent
APPLICANT: De Crecy-Lagard, Valerie
APPLICANT: De Crecy-Lagard, Valerie
APPLICANT: De Crecy-Lagard, Valerie
APPLICANT: De Crecy-Lagard, Valerie
APPLICANT: De Crecy-Lagard, Valerie
TITLE OF INVENTION: Biosynthesis Of
TITLE OF INVENTION: Coding For These
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE:
HYPOTHETICAL: I
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 03806.0054-00000
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: FR 9: FILING DATE: 25-SEP-1992 ATTORNEY/AGENT INFORMATION:
                                                                    NUMBER OF SEQUENCES: 4
                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGINAL SOURCE:
ADDRESSEE: Finneg:
STREET: 1300 I St:
CITY: Washington
STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM: S.pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: Meyers, Kenneth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               38 AGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTG 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCATCTACGCCGCCACCGCCGCCTACGGCC 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGGGAGAGCCTGACGGCCGAGGACCGGC 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCTGGTCAAGGACAGGGCCGCCCGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCC 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCTCGCCTCCCGCTGCGAGGTCCAGGTCGCCTACGCCATCGGCAAGGCCGAGCCGGTCG 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCCGCATCGCGCGGTACAAGTCCCGGCACGGCGTCCCCGATGATGCAGCCCGGCCCGGGTCA 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGA 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCACCGAGGTCTTCGACCTGCGCCCCGCGGCCATCATCCGCGACCTCGACCTGCTGCGGC 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGTCGACCGTTCCGCCGCGTACGCGATGCGCTCGGTCGCCAAGAACGTCGTCGCCGCGG 919
                                E: Finnegan, Henderson, Farabow, 1300 I Street, N.W., Suite 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1208 base pairs
                                                                                                                                                                                                                                                                                         Blanc, Veronique
Blanche, Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (202) 408-4400
                                                                                                                                                                                                                                                     Jacques,
                                                                                                                                                                                                                                                                        Crouzet,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17.3%;
                                                                                                                                                                                                                Patricia
Denis
                                                                                                     Polypeptides Involved In The Biosynthesis Of Streptogramins, Nucleotide Sequences Coding For These Polypeptides And Their Use
                                                                                                                                                                                                                                                                            Joel
                                                                                                                                                                                                                                                      Nathalie
                                                                                         45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FR 92/11441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 54; DB 2; Length 1208; Pred. No. 0.0042;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches 135; Indels
                                                   Garrett & Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . 1039
```

```
Ś
                                                                                       Ś
                                                                                                                                                  Ś
                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                  밁
                                                          밁
                                                                                                                      B
                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                            US-08-510-646B-4
                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (202) 408-4400 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 1208 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: FORM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ANTI-SENSE: NO ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 03
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 25-SEP-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: FR 9
FILING DATE: 25-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION UMBER: US 08/403,852
FILING DATE: 10-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Meyers, Kenneth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: FILING DATE: 03-AUG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: USA
                                                          1040
1100 CCATCTACGCCGCCACCGCCGCCTACGGCC
                                                                                                                        980
                           278
                                                                                         218
                                                                                                                                                    920 GCCTCGCCTCCCGCTGCGAGGTCCAGGTCGCCTACGCCATCGGCAAGGCCGAGCCGGTCG
                                                                                                                                                                                                                                                 860 AGGTCGACCGTTCCGCCGCGTACGCGATGCGCTGGGTCGCCAAGAACGTCGTCGCCGCGG
                                                                                                                                                                                                                                                                                                              135;
                                                                                                                                                                                                                   98
                                                                                                                                                                                                                                                                                38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nucleic acid
                           GCCGGGAGAGCCTGACGCCGAGGACCGGC 307
                                                                               TGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGCGTCGAGGACCTGGTGATGA
                                                                                                                        GCCTGTTCGTCGAGACGTTCGGCACCGGCACCGTCGCCCAGGAGCGCATCGAGAAGGCCCA
                                                                                                                                                                                                                AGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCCCCATCGACCTCGGTG
                                                          TCACCGAGGTCTTCGACCTGCGCCCCGCGGCCATCATCCGCGACCTCGACCTGCTGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (202) 408-4000
(202) 408-41000
                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                         S.pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                           SdC
                                                                                                                                                                                                                                                                                                                                                                                           1..1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-AUG-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     double
                                                                                                                                                                                                                                                                                                                           17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FR 92/11441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCT/FR 93/00923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US/08/510,646B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4.
                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03806.0054-01000
                                                                                                                                                                                                                                                                                                           Score 54; ,DB 3;
Pred. No. 0.0042;
0; Mismatches 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Version #1.30
                                                                                                                                                                                                                                                                                                              135; Indels
                                                                                                                                                                                                                                                                                                                                          Length 1208
                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                             Gaps
                                                            1099
                                                                                                                        1039
                                                                                         277
                                                                                                                                                     217
                                                                                                                                                                                      979
                                                                                                                                                                                                                   157
                                                                                                                                                                                                                                                 919
                                                                                                                                                                                                                                                                                97
```

0

RESULT 12 US-09-231-818-4

Sequence 4, Application US/09231818 Patent No. 6171846 GENERAL INFORMATION:

```
á
                      Ş
                                                     밁
                                                                                                                     밁
                                                                                                                                                     Ś
                                                                                                                                                                                                                                                         US-09-231-818-4
                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                       Matches 135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (202) 408-4400 INFORMATION FOR SEQ ID NO: 4 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: DeŠussche, Laurent APPLICANT: De Crecy-Lagard, Valerie IITLE OF INVENTION: Polypeptides Involved In The TITLE OF INVENTION: Bolypeptides Involved In The TITLE OF INVENTION: Coding For These Polypeptides And Their Use NUMBER OF SEQUENCES: 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 03806.0054-00000
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/08/403,852
FILING DATE: 10-MAY-1995
APPLICATION NUMBER: PCT/FR 93/00923
FILING DATE: 25-SEP-1993
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOCTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/231,818
                                                                                                                                                                                                                                                                                                                                                                      TOPULCE TYPE: CD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FR 9:
FILING DATE: 25-SEP-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                        ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT
                                                                                                                                                                                                                                                                         LOCATION:
                                                                                                                                                                                                                                                                                       NAME/KEY:
                                                                                                                                                                                                                                                                                                                      ORGANISM: S.pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: Meyers,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ENGTH:
                                                       920
                                                                                                                       860
                      158
                                                                                    98
                                                                                                                                                      38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Washington
GCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGACGACCACGGCCTCGACGAATCGTTCC 217
                                                   GCCTCGCCTCCCGCTGCGÄGGTCCAGGTCGCCTACGCCATCGGCAÄGGCCGAGCCGGTCG
                                                                                    TCCGCATCGCGCGGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCCGGGCCGGGTCA 157
                                                                                                                                                     AGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTG
                                                                                                                                                                                                                                                                                                                                       SOURCE:
                                                                                                                    AGGTCGACCGTTCCGCCGCGTACGCGATGCGCTTGGGTCGCCAAGAACGTCGTCGCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: Finnegan, Henderson, Farabow, Garrett & Dunner
1300 I Street, N.W., Suite 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                         1208 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Blanc, Ve
Blanche,
                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Crouzet,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zagorec, Monique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lacroix,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Jacques,
                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (202) 408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            UMBER: FR 92/11441
25-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                           CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kenneth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Veronique
                                                                                                                                                                                                   17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patricia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Denis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.
                                                                                                                                                                                     0
                                                                                                                                                                                                       Score 54; DB 3; Pred. No. 0.0042;
                                                                                                                                                                                     Mismatches 135;
                                                                                                                                                                                                                      DB 3; Length 1208;
                                                                                                                                                                                     Indels
                                                                                                                                                                                     0;
                                                                                                                                                                                  Gaps
                                                     979
                                                                                                                     919
                                                                                                                                                      97
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
US-09-635-359B-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 4, Application US/09635359B Patent No. 6670157 GENERAL INFORMATION:
                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                PILING DATE: 09-Aug-2000

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/231,818
FILING DATE: 15-JAN-1999
APPLICATION NUMBER: US 08/403,852
FILING DATE: 10-MAY-1995
APPLICATION NUMBER: PCT/FR 93/00923
FILING DATE: 25-SEP-1993
APPLICATION NUMBER: FR 92/11441
FILING DATE: 25-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1040
                                                                                                                     TOPOLOGY: linear MOLECULE TYPE: cDNA
                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                      FEATURE
                                                            ORIGINAL SOURCE:
                                                                             ANTI-SENSE: NO
                                                                                                HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1100 CCATCTACGCCGCCACCGCCCTACGGCC 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           278 GCCGGGAGAGCCTGACGGCCGAGGACCGGC 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                980 GCCTGTTCGTCGAGACGTTCGGCACCGGCACCGTCGCCCAGGAGCGCATCGAGAAGGCCA 1039
                                                                                                                                                                                                                                                      TELEPHONE: (202)
                                                                                                                                                                         LENGTH: 1208 base pairs TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                   NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCACCGAGGTCTTCGACCTGCGCCCCGCGGCCATCATCCGCGACCTGGACCTGCTGCGGC 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    regreaaccreraceacereareareaeegaearereceeeereceaegaeereerea 277
NAME/KEY:
                                     ORGANISM: S.pristinaespiralis
                                                                                                                                                            STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/09/635,359B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Finnegan, Henderson, Farabow, Garrett & Dunner STREET: 1300 I Street, N.W., Suite 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Debussche, Laurent
De Crecy-Lagard, Valerie
INVENTION: Polypeptides Involved In The
Biosynthesis Of Streptogramins,
Coding For These Polypeptides Ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Thibaut, Denis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Blanc,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zagorec,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Jacques,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Crouzet,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Blanche,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lacroix,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
CDS
                                                                                                                                                                                                                                                                               (202)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Monique
                                                                                                                                                                                                                                                               408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Patricia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nathalie
                                                                                                                                                                                                                                                                                   408-4000
                                                                                                                                                                                                                                                                                                                         03806.0054-03000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                And
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nucleotide Sequences nd Their Use
```

0

```
;
SEQUENCE DESCRIPTION: SEQ ID NO:
US-09-635-359B-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 14
US-08-403-852D-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   श्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1, Application Patent No. 5891695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                        COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/403,85
                                               APPLICATION NUMBER: FR 92/11441 FILING DATE: 25-SEP-1992 ATTORNEY/AGENT INFORMATION:
                                                                                              FILING DATE: 10-MAY-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/I
FILING DATE: 25-SEP-1993
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                     ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatil
                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                          STREET: 1300 1 50
CITY: Washington
NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 03806.0054-00000
                                                                                                                                                                                                                                                                                                                  STATE: D.C
                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38 AGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCCATCGACCTCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCTGGTCAAGGACAGGGCCGCCCGCCTACGCCGCCGACCACGGCCTCGACGAATCGTTCC 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCTCGCCTCCCGCTGCGAGGTCCAGGTCGCCTACGCCATCGGCAAGGCCGAGCCGGTCG 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Application US/08403852D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCATCTACGCCGCCACCGCCCTACGGCC 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGGGAGAGCCTGACGGCCGAGGACCGGC 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGA 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCTGTTCGTCGAGACGTTCGGCACCGGCACCGTCGCCCAGGAGCGCATCGAGAAGGCCA 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCACCGAGGTCTTCGACCTGCGCCCCCGCGGCCATCATCCGCGACCTCGACCTGCTGCGGC 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGTCGACCGTTCCGCCGCGTACGCGATGCGCTCGGTCGCCCAAGAACGTCGTCGCCGCGG 919
                                                                                                                                                                                                                                                                                                                                             E: Finnegan, Henderson, Farabow, 1300 I Street, N.W., Suite 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                      De Crecy-Lagard, Valerie
                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Thibaut,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Blanche, Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Crouzet,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Blanc, Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                        Polypeptides Involved In The
Biosynthesis Of Streptogramins, Nucleotide Sequences
Coding For These Polypeptides And Their Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Monique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Denis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Patricia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Joel
                                                                                                                                                                                                                                                                                                                                                                                             43
                                                                                                                             PCT/FR 93/00923
                                                                                                                                                                        US/08/403,852D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 54; D
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches 135; Indels
                                                                                                                                                                                                          Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 4; Length 1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .0042;
                                                                                                                                                                                                                                                                                                                                                             Garrett
                                                                                                                                                                                                                                                                                                                                                              Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
```

```
RESULT 15
US-08-510-646B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-403-852D-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1, Application US/08510646B Patent No. 6077699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Blanc, Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: (202) 408-4400 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                APPLICANT: Debussche APPLICANT: De Crecy-TITLE OF INVENTION: TITLE OF INVENTION: TITLE OF INVENTION:
                                                                    ZIP: 20005-3315
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
           SOFTWARE: PATENTIN Release #1.0, VICURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/510,646B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGINAL SOURCE:
ORGANISM: S.pristinaespiralis
                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: cl
HYPOTHETICAL: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                STREET: 1300 I St
CITY: Washington
FILING DATE:
                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 5392 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4657 CCATCTACGCCGCCACCGCCCCCCTACGGCC 4686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4417 AGGICGACCGTTCCGCCGCGTACGCGATGCGCTGGGTCGCCAAGAACGTCGTCGCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38
                                                                                                                                                                                     D.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCTGGTCAAGGACAGGGCCGCCCGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCTCGCCTCCCGCTGCGAGGTCCAGGTCGCCTACGCCATCGGCAAGGCCGAGCCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGGGAGAGCCTGACGGCCGAGGACCCGGC 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCACCGAGGTCTTCGACCTGCGCCCCCGCGGCCATCATCCGCGACCTCGACCTGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCTGTTCGTCGAGACGTTCGGCACCGGCACCGTCGCCCAGGAGCGCATCGAGAAGGCCCA
                                                                                                                                                                                                                                                                                                                                                                                      Blanche, Francis
Crouzet, Joel
Jacques, Nathalie
Lacroix, Patricia
Thibaut, Denis
Zagorec, Monique
                                                                                                                                                                                                                        1300 I Street,
                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                            Debussche, Laurent
De Crecy-Lagard, Valerie
De Crecy-Lagard, Valerie
VENTION: Polypeptides Involved In The
VENTION: Biosynthesis Of Streptogramins, Nucleotide Sequences
VENTION: Coding For These Polypeptides And Their Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                      Finnegan, Henderson, Farabow, 00 I Street, N.W., Suite 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (202) 408-4000
03-AUG-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 54; DB 2;
Pred. No. 0.0048;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                    Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         135; Indels
                                                                                                                                                                                                                                           Garrett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 5392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97
```

```
CLASSIFICATION: 435
PRIOR APPLICATION NUMBER: US 08/403,852
FILING DATE: 10-MAY-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/FR 93/00923
FILING DATE: 25-SEP-1993
PRIOR APPLICATION NUMBER: FR 92/11441
FILING DATE: 25-SEP-1992
ATTORNEY/AGENT INFORMATION:
NAME: Meyers, Kenneth J.
REGISTRATION NUMBER: 25,146
REFERENCE/DOCKET NUMBER: 03806.0054-01000
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 408-4400
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 5392 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
MOLECULE TYPE: cDNA
HYPOTHETICAL: NO
ORGANISM: S.pristinaespiralis
ORGANISM: S.pristinaespiralis
Search completed: October Job time: 59.8815 secs
                                                                                밁
                                                                                                               S
                                                                                                                                                                밁
                                                                                                                                                                                           δ
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-08-510-646B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 17.3%;
Best Local Similarity 50.0%;
Matches 135; Conservative
                                                                                                                                                                4597
                                                                                                                                                                                                                                              4537
                                                                                                                                                                                                                                                                                                                                                                                                            4417
                                                                                4657 CCATCTÁCGCCGCCACCGCCGCCTÁCGGCC 4686
                                                                                                                                                                                                                                                                                                                          4477 GCCTCGCCTCCCGCTGCGAGGTCCAGGTCGCCTACGCCATCGGCAAGGCCCGAGCCGGTCG 4536
                                                                                                                        278
                                                                                                                                                                                                      218
                                                                                                                                                                                                                                                                                    158 GCCTGGTCAAGGACAGGGCCGCCGCCTACGCCGGCCGACCACGGCCTCGACGAATCGTTCC 217
                                                                                                                                                                                                                                                                                                                                                                                                                                     38 AGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCGCATCGACCTCGGTG
                                                                                                                                                                                                                                                                                                                                                                  98 TCCGCATCGCGCGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCCCGGCCCGGGTCA 157
                                                                                                                      GCCGGGAGAGCCTGACGGCCGAGGACCGGC 307
                                                                                                                                                              TCACCGAGGTCTTCGACCTGCGCCCCCGCGGCCATCATCCGCGACCTCGACCTGCTGCGGC 4656
                                                                                                                                                                                       TGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGA 277
                                                                                                                                                                                                                                            GCCTGTTCGTCGAGACGTTCGGCACCGGCACCGTCGCCCAGGAGCGCATCGAGAAGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                          AGGTCGACCGTTCCGCCGCGTACGCGATGCGCTCGGTCGCCAAGAACGTCGTCGCCGCGG 4476
                  2005, 10:06:41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches 135; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 54; DB 3; Length 5392; Pred. No. 0.0048;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                            4596
                                                                                                                                                                                                                                                                                                                                                                                                                                                  97
```

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Searched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Perfect score:
                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                          312
296.4
264.8
59.4
59.2
57.6
                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-3
312
    100.0
95.0
84.9
19.0
19.0
18.5
17.6
                                                                                                                                                                      Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           October 4, 2005, 20:50:02; Search time 306.305 Seconds (without alignments) 7033.027 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                              22222211111111110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7442561 segs, 3452328358 residues
                                                                                                                                                                                              Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 atgaccgagcagaacgagct.....cggccgaggaccggcggtga 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Published Applications NA:*

1: /cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*

2: /cgn2_6/ptodata/1/pubpna/PCT NEW PUB.seq:*

3: /cgn2_6/ptodata/1/pubpna/US06_NEW PUB.seq:*

4: /cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*

5: /cgn2_6/ptodata/1/pubpna/PCTUS_PUBCOMB.seq:*

6: /cgn2_6/ptodata/1/pubpna/PCTUS_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          /cgn2_6/ptodata/1/pubpna/US08_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09E_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09E_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09E_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10E_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                        /cgn2_6/ptodata/1/pubpna/US10_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US11_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US11_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US60_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US60_PUBCOMB.seq:*
                                                                                                                                                                      Length DB ID
    312
3305
12391
3114
838
1009
1398
                                                                                                           20
14
US-10-472-587-3

US-10-126-927-68

US-10-126-927-67

US-10-437-963-48039

US-10-425-115-320

US-10-425-114-33332

US-10-156-761-1302
                                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14885122
                                                                                                                                                                  Description
               Sequence 3, Appli
Sequence 68, Appl
Sequence 67, Appl
Sequence 48039, A
Sequence 320, App
Sequence 33332, A
  Sequence
1302,
```

45	44	43	42	41	40	39	38	37	36	35	34	သ	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	c 17	16	15	14	13	12	11	c 10	9	ი 8
			٥.						1.	51.2			1			۲	۲		52.2	2	2	٧.	2	'n	52.6	53	ŭ	53.6	ŭ	ŭ	54	54	54.4	4.	54.8	4.	55
16.2	16.2	٠	٠	16.3	•	٠	16.3	•	•	16.4			16.4		•			•	16.7	16.8		16.9	16.9	16.9	16.9	•		17.2			17.3	•	17.4	•		17.6	17.6
1537	1414	1014	6122	6122	6122	3012	852	6990	6855	6855	6816	6816	5562	1707	1393	13654	732	1686	762	30943	1410	3735	2264	1869	1869	1356	45055	29870	2817	837	5392	1208	1284	9025608	(J)	1458	9025608
20	20	15	19	19	15	15	15	19						15	19	17	15	21	15	22	22	17	19	17	17	17	17	21	15	17	20	20	15	15	17	17	15
US-10-425-115-110407	US-10-739-930-2200	56-76	-10-722-35	-10-755	-10-225-56	-10-156-76	US-10-156-761-6124	US-10-377-139-8	-800-	US-09-935-541-3	US-10-425-800-1	•	0	US-10-156-761-4723	-10-437-963-	-10-292-798-	-10-156-761-	1	US-10-156-761-3402		1	US-10-369-493-44134	437-963-3007	3113	-10-369-493-2837	-10-282-122A	-10-107-431-	-10-494-49	-10-156-761-48	-10-107-431-	-10-716-	US-10-716-803-4	US-10-156-761-3832	US-10-156-761-1	-10-107-431-2	US-10-107-431-76	US-10-156 ⁻ 761-1
Sequence 110407,	e 2200	e 3014	e 23,	185	179,	2716,	6124,	8, App	e u	3, 7	e 1	۳	18	4723,	8368,	1131,			340		40			31135,		30160	27		48	11	1,	4	3832	e 1,	277,	76,	Sequence 1, Appli

ALIGNMENTS

RESULT 1 US-10-472-587-3

Sequence 3, Application US/10472587 Publication No. US20040214274A1

```
GENERAL INFORMATION:

APPLICANT: YANAI, Koji
APPLICANT: SUMIDA, Naomi
APPLICANT: WATANABE, Manabu
APPLICANT: WATANABE, Manabu
APPLICANT: WATANABE, Manabu
APPLICANT: MURAKAMI, Takeshi
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods fo
TITLE OF INVENTION.

TOTAL TRANSFORMANT AND TRANSFORMANT AND TRANSFORMANT AND TRANSFORMANT AND TRANSFORMANT AND TRANSFORMANT AND TRANSFORMANT AND TRANSFORMANT AND
```

```
APPLICANT: Meňí, Rýan A
APPLICANT: Pastrnak, Miro
APPLICANT: Santoro, Stephen W
APPLICANT: Santoro, Stephen W
APPLICANT: Zhang, Zhiwen
TITLE OF INVENTION: In Vivo Incorporation of Unnatural Amino Acion FILE REFERENCE: 54-000120Us
CURRENT APPLICATION NUMBER: US/10/126,927
CURRENT FILING DATE: 2002-04-19
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR APPLICATION NUMBER: US 60/355,514
                                                                                        밁
S
                               밁
                                                         S
                                                                                                                    Ś
                                                                                                                                                                                                             ; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 2
US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                            Query Match
Best Local Similarity 98.4
Matches 311; Conservative
                                                                                                                                                                                                                                                    SOFTWARE: PatentIn version 3.1
SEQ ID NO 68
LENGTH: 3305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 68, Application US/10126927 Publication No. US20030082575A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: The Scripps Research Institute
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                          2990
                             3050 GACGCTTCTGGACACGGTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGCTACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                312;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             μ
                                                                                       ATGACCGAGCAGAACGAGCTGCAGGTTGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACG
GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGC
                                                                                                                    ATGACCGAGCAGAACGAGCTGCA----GCGGCTGCGCGCGGAGCTCGACGCCCTCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chin, Jason
Liu, David R
Magliery, Thomas
Meggers, Eric L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCGGCGGTGA 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACCGGCGGTGA 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGACCGAGCAGAACGAGCTGCAGCGCGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                             95.0%;
98.4%;
                                                                                                                                                 Score 296.4; DB 1-
Pred. No. 7.6e-71;
0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                             DB 14; Length 3305;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                 4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                       3049
                                                                                                                    56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                        8
                                                                      밁
                                                                                                  Ś
                                                                                                                                 밁
                                                                                                                                                          Ş
                                                                                                                                                                                            밁
                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                 Matches 280;
                                                                                                                                   2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3170
                                                                                                                                                                117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            177
```

```
; LENGTH: 12391
; TYPE: DNA
; ORGANISM: Plasmid
US-10-126-927-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: The Scripps Research Institute
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
APPLICANT: Anderson, John C
APPLICANT: Chin, Jason
APPLICANT: Liu, David R
APPLICANT: Magliery, Thomas
APPLICANT: Meggers, Eric L
APPLICANT: Meggers, Eric L
APPLICANT: Meggers, Miro
APPLICANT: Pastrnak, Miro
APPLICANT: Pastrnak, Miro
APPLICANT: Santoro, Stephen W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 3
US-10-126-927-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn version 3.1 SEQ ID NO 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 67, Application US/10126927 Publication No. US20030082575A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Zhang, Zhiwen
TITLE OF INVENTION: In Vivo Incorporation of Unnatural Amino Acids
FILE REFERENCE: 54-000120US
CURRENT APPLICATION NUMBER: US/10/126,927
CURRENT FILING DATE: 2002-04-19
FRIOR APPLICATION NUMBER: US 60/285,030
PRIOR PILING DATE: 2001-04-19
PRIOR PILING DATE: 2001-04-19
PRIOR PILING DATE: 2001-04-19
PRIOR PILING DATE: 2002-02-06
NUMBER OF SEQ ID NOS: 79
NUMBER OF SEQ ID NOS: 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3110 GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGC
                                                                                                                                                                                                                                                                                               2115 GACGCTTCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAA
                                                                                                                                                                                                                                                                                                                                                                                              2055 ATGACCGAGCAGAACGAGCTGCAGGTTGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                237 GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGC 296
                                                                                                                                                                                                                                                                                                                                             57 GACGCTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAA
                                                                                                                                                                                                                                                                                                                                                                                                                          1 ATGACCGAGCAGAACGAGCTGCA-----GCGGCTGCGCGGGGGGGCTCGACGCCCTCGACGG
                              GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGG
                                                                                                                            CGCCCGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT 236
                                                                                                                                                                                               GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGC
GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGAGGACCGGCGGTGA 312
                                                                                                                                                                                                                                            GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGC 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGAGGACCGGCGGTGA 3305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCCGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pastrnak, Miro
Santoro, Stephen
Zhang, Zhiwen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pSC101, Streptomycese venezuelae papABC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                84.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 264.8; DB 14;
Pred. No. 2.6e-62;
0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
2340
                                                282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12391;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                             116
                                                                                                                                                                                                                                                                                               2174
                                                                                                                                                                                                                                                                                                                                                                                                                                            56
                                                                                              2294
                                                                                                                                                                                               2234
                                                                                                                                                                                                                                                                                                                                                                                           2114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1;
```

```
RESULT 4
US-10-437-963-48039
                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                RESULT 5
US-10-425-115-320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; OTHER INFORMATION: Clone ID: PAT_MRT4530_50752C. US-10-437-963-48039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Rice Nucleic Acid Molecules and Other Molecules Associated With TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement FILE REFERENCE: 38-21(5221)B CURRENT APPLICATION NUMBER: US/10/437,963 CURRENT FILING DATE: 2003-05-14 NUMBER OF SEQ ID NO 48039 ID NOS: 204966 SEQ ID NO 48039 LENGTH: 3114
                                          FILE REFERENCE: 38-21(53222)B
CURRENT APPLICATION NUMBER: US/10/425,115
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 369326
SEQ ID NO 320
LENGTH: 838
                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                               Sequence 320, Application US/10425115
Publication No. US20040214272A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 48039, Application US/10437963 Publication No. US20040123343A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                     APPLICANT: La ROSA, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Cao, Yongwei
TITLE OF INVENTION: Nucleic Acid Molecules
TITLE OF INVENTION: Plants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: La Rosa, Thomas J.
APPLICANT: Kovalic, David K.
APPLICANT: Zhou, Yihua
APPLICANT: Zhou, Yihua
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: DNA
ORGANISM: Oryza sativa
ORGANISM: Zea FEATURE:
                              TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                1093
                                                                                                                                                                                                                                                                                                                                                                                                              1033
                                                                                                                                                                                                                                                                                                                                                                                                                               196 CACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGC
                                                                                                                                                                                                                                                                                                                                                                             256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16
                                                                                                                                                                                                                                                                                                                                                                             CGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCG 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCAAGGACTACGTCAAGGTCACCCTCATCGAGGCCAACGAGATCCTCCTCCTTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGTTCAGCGGCGAGCTCAGCGACTTCATCACCCGCGACGTGCGGGAGAGGTACGCTCAC 972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTG 75
                                                                                                                                                                                                                                                                                                                                                                                                            GTCGGGCTGCGCCAGTACGCCACGGACCACCTCTCCAAGTACGGCGTGAACCTGGTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCGCCGCATCGACCTCGGTGTCCGCATCGCGGTACAAGTCCCGGCACGGCGTCCCG 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGGAAGAAGAAGCGCCTCCTGCACTGCGTCGTCGTCGGCGGGGTCCGACCGGGGTG 912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cao, Yon
Wu, Wei
                                                                                                                                                                                                                                                                                                                                                GGCGTGGTGAAGGAGGTGAAGCCGAGGGAGATCGAGCTGAGCGACGGGAGCCG 1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Li, Ping
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Barbazuk, Brad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Boukharov, Andrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
              maye
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 59.4; DB 19;
Pred. No. 1.1e-06;
0; Mismatches 146;
                                                                                                                                                         and
                                                                                                                                                         Other Molecules
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                         Associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1032
                                                                                                                                                                                                                                                                                                                                                                                                            1092
                                                                                                                                                                                                                                                                                                                                                                                                                                           255
                                                                                                                                                         With
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 6
US-10-425-114-33332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                        Ś
                                                                            밁
                                                                                                        á
                                                                                                                                       밁
                                                                                                                                                                    Ś
                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 146; Conserv
                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    313
                                                                                                                                                                                                                                                                   120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94
```

```
GENERAL INFORMATION:

APPLICANT: Liu, Jingdong
APPLICANT: Zhou, Yihua
APPLICANT: Kovalic, David K.
APPLICANT: Kovalic, David K.
APPLICANT: Screen, Steven E
APPLICANT: Tabaska, Jack E
APPLICANT: Tabaska, Jack E
TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REFERENCE: 38-21(53313)8
CURRENT APPLICATION NUMBER: US/10/425,114
CURRENT FILING DATE: 2003-04-28
NUMBER OF SEQ ID NOS: 73128
SEQ ID NO 33332
LENGTH: 1009
TYPE: DNA
ORGANISM: Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; OTHER INFORMATION: Clone ID: US-10-425-114-33332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; OTHER INFORMATION: Clone ID: MRT4577_100296C.1 US-10-425-115-320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 33332, Application US/10425114 Publication No. US20040034888A1
                                                                                                                                                                                    597 TCCGCGACGGCGCGCCCGGCAGGATCAGGCAGCTCTGCTACGACAAGGTGCTCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             154 GTCAGCCTGGTCAAGGACAGGGCCGCCGCTACGC---CGCCGACCACGGCCTCGACGAA
                                           263 AGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAGGACCGG 306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34 GCGGAGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCTC
                                                                                                                     TCGACGAATCGTTCCTGGTGAACCTTCTACGACGTGATCATCACGGAGATGTGCCGCGTCG
                                                                                                                                                                                                                           AGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCCGCTACGCCGCCGACCACGGCC
                                                                                                                                                                                                                                                                             GCAACGACTGCGGCGTGCGCATCGTGGAGGCCAGGTGCGACCGCGACATGGCCGAGTGGA
                                                                                                                                                                                                                                                                                                                 GCATCGACCTCGGTGTCCGCCATCGCGCGTACAAGTCCCCGCACGGCGTCCCCGATGATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGATGAGCCGGGAGAGCCTGACGGCCGAGGA 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCATCCGGGAGGTGCTCGCCAGCCGCCAGCGCGTCTTCGTCGTCATGGAGTACGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGGAGCAGCTGCGCCGGGAGATCTCCGTCATGCGCATGGTGCGCCACCCCAACGTCGTC
TGGCGCTGGGGTTCAGCTGGGCGCACCTCATCGGCGACATCCCG
                                                                                         CCGAGCTCTTCTTCTCGCCGCTGCTCTACGTCCAGATCACAAACTTCAAATGCGGTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TACTTCCAGCAGCTCGTCGCCGTCGCCTTCTGCCACAGCCGCGGCGTCGCGCACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                            18.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 59.2; DB 20;
Pred. No. 1.4e-06;
0; Mismatches 123;
                                                                                                                                                                                                                                                                                                                                                                      <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UC-ZMFLMO17095G02_FLI
                                                                                                                                                                                                                                                                                                                                                                 Score 57.6 DB 18
Pred. No. 3.7e-06;
0; Mismatches 104
                                                                                                                                                                                                                                                                                                                                                                                                                  DB 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             584
                                                                                                                                                                                                                                                                                                                                                                         104;
                                                                                                                                                                                                                                                                                                                                                                                                               Length 1009;
                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                838;
                                                                                                                                                                                                                                                                                                                                                                      ,,
                                                                                                                                      262
                                                                                                                                                                                    656
                                                                                                                                                                                                                                                                             596
                                                                                                                                                                                                                                                                                                                             142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93
                                                                                                                                                                                                                                  202
                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  With
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲
```

RESULT 7 US-10-156-761-1302

GENERAL INFORMATION:

APPLICANT: OMURA, SATOSHI

Sequence 1302, Application US/10156761 Publication No. US20030119018A1

```
RESULT 8
US-10-156-761-1/c
                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)..(1398)
US-10-156-761-1302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHEA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIKA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR FILING DATE: 2001-05-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                 Sequence 1, Application US/10156761 Publication No. US20030119018A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 148;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 1302
LENGTH: 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
APPLICANT:
                                APPLICANT:
                                                                APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIRO
 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 2001-08-02
                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 15109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA ORGANISM: Streptomyces avermitilis
CANT: SHIBA, TÄDAYOSHI
CANT: SAKAKI, YOSHIVIKI
CANT: HATTORI, MASAHIRA
OF INVENTION: NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                   309
                                                                                                                                                                                                                                                                                                                 663
                                                                                                                                                                                                                                                                                                                                                  249
                                                                                                                                                                                                                                                                                                                                                                                    603
                                                                                                                                                                                                                                                                                                                                                                                                                   189
                                                                                                                                                                                                                                                                                                                                                                                                                                                   543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   423
                                                                                                                                                                                                                                                    723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                    GIG
                                                                                                                                                                                                                                                                                    GTG 311
                                                                                                                                                                                                                                                                                                                                                  GATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                            CGCCGACCACGGCCTCGAACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTGGCGCTGATGGCGGCACTGCCCCGGCTCGCCCGGCACAGCGGCGTCGACCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACGGTGCGGCGCCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCCCGGCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCAGAACGAGCTGCAGCGCGCGCGCGGAGCTCGACGCCTCGACGGGACGCTCCTGGA
                                                                                                                                                                                                                                                                                                                     CGCCGCGCTGTGGCTCGCGCCTCTCCACCCGCTGGTGCTGCATCTGGTCGCGGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTGACGCGGCGAGCTGCCGGGCCGGCCTGCTCGGCATGCGGCTCGCACTGCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAGCACACGCCGACCCCGTACGGACCGGTCTTCCTTCGCCGTCGCCCTCGCCCTGTCCGG
                                                                ISHIKAWA, JUN
HORIKAWA, HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IKEDA, HARUO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17.6%; ilarity 48.8%; Conservative
                                                                                                                                                                                                                                                    725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 55; DB 15;
Pred. No. 1.8e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                  308
                                                                                                                                                                                                                                                                                                                                                                                  662
                                                                                                                                                                                                                                                                                                                                                                                                                   248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83
                                                                                                                                                                                                                                                                                                                 722
                                                                                                                                                                                                                                                                                                                                                                                                                                                 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

S

6 CGAGCAGAACGAGCTGCAGCGGCTGCGCGGAGCTCGACGCCCTCGACGGGACGCTCCT 65

ORTHO

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                     ; ORGANISM: Streptomyces mobaraensis US-10-107-431-76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-107-431-76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
PRIOR FILING DATE: 2001-08-02
PRIOR FILING DATE: 2001-08-02
PRIOR FILING DATE: 2001-08-02
PRIOR FILING DATE: 2001-08-02
                                                                                                                           SOFTWARE: PatentIn version 3.0
SEQ ID NO 76
LENCTH: 1458
TYPE: DNA
                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 76, Application US/10107431 Publication No. US20030224364A1
  Matches 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches 148;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 17.6%;
Best Local Similarity 48.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 1
                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/10/107,431
CURRENT FILING DATE: 2002-03-28
NUMBER OF SEQ ID NOS: 282
                                                                                                                                                                                                                                                                               TITLE OF INVENTION: COMPOSITIONS FITTLE OF INVENTION: BIOSYNTHETIC FILE REFERENCE: 3001-7US
                                                                                                                                                                                                                                                                                                                                          APPLICANT: Farnet, Chris
APPLICANT: Staffa, Alfredo
APPLICANT: Zazopoulos, Emmanuel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc feature LOCATION: (4187715)
OTHER INFORMATION: a, t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA ORGANISM: Streptomyces avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1623949 GCACAACGACGCCGTCATGCTGGGGCTGCTCGGCCGGACTGGTCGCCGCCGCCGCCCG 1623890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1624009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1624069 GGTGGCGCTGATGGCGGCGGCACTGCCCCGGCTCGCCCGGCACAGCGGCGTCGACCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1624129 CCTGACGCGCGAGCTGCCGGCCGGGCTGCTCGGCATGCGGCTGGTCGCACTGCTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1624189 GCAGCACACGCCGACCCCGTACGGACCGGTCTTCCTCGCCGTCGGCCCTGTCCGG 1624130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1623889 GTG 1623887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   309 GTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9 GCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGGCCCTCGACGGGACGCTCCTGGA 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9025608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAGGACCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGCGCTGTGGCTCGGCGCTCTCCACCCGCTGGTGCTGCTGCATCTGGTCGCGGGGGC 1623950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCCCCGGCACGG 128
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   311
                      17.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g, other or unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
0
                      Score 54.8; DB 17;
Pred. No. 2.1e-05;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 55; DB 15;
Pred. No. 1.2e-05;
                                                                                                                                                                                                                                                                                                     AND METHODS FOR IDENTIFYING AND DISTINGUISHING LOCI
  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches 155;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 9025608;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                       Length 1458;
  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
<u>,,</u>
  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1624010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1624070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        248
  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

S

ई 밁 8 밁 á

밁

```
RESULT 11
US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: DNA
; ORGANISM: Streptomyces mobaraensis
US-10-107-431-277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 10
US-10-107-431-277/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Farnet, Chris
APPLICANT: Staffa, Alfredo
APPLICANT: Zazopoulos, Emmanuel
APPLICANT: Zazopoulos, Emmanuel
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR IDENTIFYING AND DISTINGUISHING ORTHO
TITLE OF INVENTION: BIOSYNTHETIC LOCI
TITLE REFERENCE: 3001-7US
CURRENT APPLICATION NUMBER: US/10/107,431
CURRENT APPLICATION NUMBER: US/10/107,431
CURRENT FILING DATE: 2002-03-28
NUMBER OF SEQ ID NOS: 202
SOFTWARE: Patentin version 3.0
SEQ ID NO 277
LENGTH: 45055
Sequence 1, Application US/10156761
Publication No. US20030119018A1
GENERAL INFORMATION:
APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 277, Application US/10107431 Publication No. US20030224364A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                37389
                                                                                                                                                                                                                                                                                                         37449
                                                                                                                                                                                                                                                                                                                                                                                                     37509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37569 CTCGCTGGTCCAGGAGAACCCGACCGTCCGCGACCTCATGGCGGAGGGCGAGTACCAGCC 37510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             37629
                                                                                                                                                                                                                                                                                                                                                                                                                                                   126
                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                                       186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tch 17.6%;
al Similarity 49.0%;
146; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6 CGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACGCTCCT 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCACCAGGACCGCTTCCTGGAGCGCGCAAGGAGCACGACCTGGAGGCGATGCTCGC 37570
                                                                                                                                                                                                                GGCGCTCTACAGCGGCATGCTGGCCGCGACGTCCGTGCTCGCCACGGTGAACGAGGAC 37332
                                                                                                                                                                                                                                                                                                                                                                                                   GGGCGTCCGGGTGGAGCAGGACTTCTCCTACGTCGCCGACAGCTTCCACGGCCCCCGGCTA 37450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGACACGGTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGGTACAAGTCCCGGCA 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCGCTGGTCCAGGAGAACCCGACCGTCCGCGACCTCATGGCGGAGGGCGAGTACCAGCC 803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTACCTCGCCGGCGACGCCGCCTGCTTCCTCGACCCGCTGCTGTCCACCGGCGTCCACCT 37390
                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCCGCTA 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGCGTCCGGGTGGAGCAGGACTTCTCCTACGTCGCCGACAGCTTCCACGGCCCCGGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGACACGGTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCCCCGGCA 125
                                                                                                                                                                                                                                                           GGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAGGAC 303
                                                                                                                                                                                                                                                                                                                                                  CGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCAC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCCGGGAGAGCCTGACGGCCGAGGAC 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCAC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCGCTCTACAGCGGCATGCTGGCCGCGACGTCCGTGCTCGCCACGGTGAACGAGGAC 981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTACCTCGCCGGCGACGCCGCCTGCTTCCTCGACCCGCCTGCTGCTCCACCGGCGTCCACCT 923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 54.8; DB 17
Pred. No. 1.8e-05;
0; Mismatches 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 45055;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                    APPLICANT: ISHIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
FULE APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION UMBER: JP 2001-204089
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-156-761-3832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                            APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROS
APPLICANT: SHIBA, TADAYOSS
APPLICANT: SAKAKI, YOSHIYU
APPLICANT: HATTORI, MASAHI
                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3832, Application US/10156761 Publication No. US20030119018A1 GENERAL INFORMATION:
  NUMBER OF SEQ ID NOS:
SEQ ID NO 3832
LENGTH: 1284
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ENGTH: 9025608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4753530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4753470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
G
```

212

4753529

4753589

4753469 92

0

밁

ş

ঠ

밁 S 밁 á 용 8

```
; FEATURE:
, NAME/KEY: misc feature
, LOCATION: (4187715)
, OTHER INFORMATION: a, t, c,
US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-26
FURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: UP 2001-204089
PRIOR APPLICATION NUMBER: UP 2001-272697
PRIOR APPLICATION NUMBER: UP 2001-272697
PRIOR FILING DATE: 2001-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 17.6%;
Best Local Similarity 50.0%;
Matches 137; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Streptomyces avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                        4753410 CACCGTGCTCAAGAAGGTCGTCGAGTCGCTCGACGGCGAGGTGAGCGCCCGTACCGTCCG
                                                     GATGAGCCGGGAGAGCCTGACGGCCGAGGACCGG 306
                                                                                                             CTTCCAGGTCGTACGCGAGGGCCGGCTGGTGGCGGCCCGGCGCCTTCGTCGATGTGTC 4753649
                                                                                                                                                                  GTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGT
                                                                                                                                                                                                                             GCGCTTCGAGGACATGACGGCGGTCGTCGACTTCCCCCCGCGTGGTCAACGCCGACGTCAC
                                                                                                                                                                                                                                                                                  GGTCAGCCTGGTCAAGGACAGGGCCGCCCGCTACGCCGACCACGGCCTCGACGAATC
                                                                                                                                                                                                                                                                                                                                          GCGGGCCCTGGACGACGCGTCAAGGTGGAGACAGGCGGCCTCACACCGAGGCTCAGCTG
                                                                                                                                                                                                                                                                                                                                                                                    CGGTGTCCGCATCGCGCGGTACAAGTCCCCGGCACGCGTCCCGATGATGCAGCCCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ceceeaecriceaceccriceaceeeacecricereacacacecececececarceaccr
GAAGGTCCTGGAGAGCAACGCGTACTGAGCCCCG 4753683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ISHIKAWA, JUN
HORIKAWA, HIROSHI
SHIBA, TADAYOSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g, other or unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 54.8; DB 15
Pred. No. 1.4e-05;
0; Mismatches 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        137;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 9025608;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

```
RESULT 13
US-10-716-803-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-156-761-3832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 4, Application US/10716803
Publication No. US20040229236A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: CDS
LOCATION: (1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floopy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA
APPLICATION NUMBER: US/10/716,803
                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 43
CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, Henderson, Far
STREET: 1300 I Street, N.W., Suite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1140
                                                                                                                       FILING DATE: 20-Nov-2003 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1020
                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ü
                                                                                                                                                                                                                                                          CITY: Washington
STATE: D.C.
COUNTRY: USA
ZIP: 20005-3315
APPLICATION NUMBER: US 09/231,818 FILING DATE: 15-JAN-1999 APPLICATION NUMBER: US 08/403,852 FILING DATE: 10-MAY-1995 APPLICATION NUMBER: PCT/FR 93/00923 FILING DATE: 25-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGGGCCCTGGACGACGCGTCAAGGTGGAGACAGGCGGCCTCACACCGAGGCTCAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGTGTCCGCATCGCGCGGTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCG 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACCGTGCTCAAGAAGGTCGTCGAGTCGCTCGACGGCGAGGTGAGCGCCCGTACCGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cecegaectrosaceccorceaceeaacecrocoreaacaceereceecececarceaccor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAAGGTCCTGGAGAGC 1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATGAGCCGGGAGAGC 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGT 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCTTCGAGGACATGACGGCGGTCGTCGACTTCCCCCGCGTGGTCAACGCCGACGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 09/635,359 FILING DATE: 09-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                            Debussche, Laurent
De Crecy-Lagard, Valerie
INVENTION: Polypeptides Involved In The
Biosynthesis Of Streptogramins,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lacroix, Patricia
Thibaut, Denis
Zagorec, Monique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Blanche, Francis
Crouzet, Joel
Jacques, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Blanc,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     avermitilis
                                                                                                                                                                                                                                                                                                                                                                                 Coding For These Polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches 126;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 54.4; DB 15
Pred. No. 2.7e-05;
                                                                                                                                                                                                                                                                                                                         Farabow,
ite 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 15;
                                                                                                                                                                                                                                                                                                                                     Garrett & Dunner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                 And
                                                                                                                                                                                                                                                                                                                                                                                Nucleotide Sequences nd Their Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1284;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ,,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                       US-10-716-803-1
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                     RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-716-803-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                 1100
                                                                                                                                                                                                                                                                                                                                                                                                                            1040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135;
                                                                                                       읁
```

```
Sequence 1, Application US/10716803
Publication No. US20040229236A1
GENERAL INFORMATION:
APPLICANT: Blanc, Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE: (202) 408-
TELEPAX: (202) 408-44
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: FR 92/11441
FILING DATE: 25-5EP-1992
ATTORNEY/ACENT INFORMATION:
NAME: Arrigo, Salvatore J.
REGISTRATION NUMBER: 46,063
REFERENCE/DOCKET NUMBER: 03806.0054-04000
TELECOMMUNICATION INFORMATION:
               NUMBER OF SEQUENCES: 43
CORRESPONDENCE ADDRESS:
ADDRESSEE: Finnegan, Henderson, Farabow,
STREET: 1300 I Street, N.W., Suite 700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1208 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
MOLECULE TYPE: cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE DESCRIPTION: SEQ ID NO: 4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HYPOTHETICAL: NO ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              278 GCCGGGAGAGCCTGACGGCCGAGGACCGGC 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              218 TGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGA 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          980 GCCTGTTCGTCGAGACGTTCGGCACCGGCACCGTCGCCCAGGAGCGCATCGAGAAGGCCA 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 158 GCCTGGTCAAGGACAGGGCCGCCCGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          920 GCCTCGCCTCCCGCTGCGAGGTCCAGGTCGCCTACGCCATCGGCAAGGCCGAGCCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            860 AGGTCGACCGTTCCGCCGCGTACGCGATGCGCTGGGTCGCCAAGAACGTCGTCGCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38 AGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCCCCATCGACCTCGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCATCTACGCCGCCACCGCCGCCTACGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCACCGAGGTCTTCGACCTGCGCCCCGCGGCCATCATCCGCGACCTCGACCTGCTGCGGC 1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM: S.pristinaespiralis
CITY: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY:
                                                              Lacrolx, ...
Thibaut, Denis
Zagorec, Monique
Zagorec, Monique
Debussche, Laurent
De Crecy-Lagard, Valerie
OF INVENTION: Polypeptides Involved In The
Biosynthesis Of Streptogramins, Nu
~~ing For These Polypeptides And
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                            Jacques, Nathalie
Lacroix, Patricia
                                                                                                                                                                                                                                                                                         Crouzet,
                                                                                                                                                                                                                                                                                                             Blanche, Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1..1208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17.3%;
                                                                                                                                                                                                                                                                                                Joel
                                                                                                                                                                                                                                                                        Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        408-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 54; DB 2
Pred. No. 3.4e-
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.4e-05;
ches 135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1208;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                         Garrett & Dunner
                                                                                                     Nucleotide Sequences nd Their Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

STATE: D.C. COUNTRY: USA ZIP: 20005-33

```
ORGANISM: S.pristinaespiralis SEQUENCE DESCRIPTION: SEQ ID NO: 1: US-10-716-803-1
                                                          RESULT 15
US-10-107-431-112
                                                                                                                                                                      ş
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                              र्
                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
Sequence 112, Application US/10107431 Publication No. US20030224364A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION NUMBER: US/10/716,803
FILING DATE: 20-Nov-2003
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/635,359
FILING DATE: 09-AUG-2000
FILING DATE: 09-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: nucleic acid
STRANDENNESS: double
TOPOLOGY: linear
MOLECULE TYPE: CDNA
HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: FR 92/11441
FILING DATE: 25-SEP-1992
ATTORNEY/AGENT INFORMATION:
NAME: Arrigo, Salvatore J.
REGISTRATION NUMBER: 46,063
REFERENCE/DOCKET NUMBER: 03806.0054-04000
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                      4477
                                                                                                                                                                                                                                                                                                                                                                                                                                                  4417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ANTI-SENSE: NO ORIGINAL SOURCE:
                                                                                                                                        4657
                                                                                                                                                                                                                4597
                                                                                                                                                                                                                                                                                          4537
                                                                                                                                                                          278
                                                                                                                                                                                                                                                    218
                                                                                                                                                                                                                                                                                                                              158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            135;
                                                                                                                                                                                                                                                                                                                                                                                                            98
                                                                                                                                      CCATCTACGCCGCCACCGCCGCCTACGGCC 4686
                                                                                                                                                                                                                                      TGGTGAACCTCTACGACGTGATCATCACGGAGAATGTGCCGCGTCGAGGACCTGGTGATGA 277
                                                                                                                                                                                                                                                                                                                              GCCTGGTCAAGGACAGGGCCGCCCGCTACGCCGACCACCACGACCAATCGTTCC 217
                                                                                                                                                                                                                                                                                                                                                                      GCCTCGCCTCCCGCTGCGAGGTCCAGGTCGCCTACGCCATCGGCAAGGCCGAGCCGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                        AGGTCGACCGTTCCGCCGCGTACGCGATGCGCTGGGTCGCCAAGAACGTCGTCGCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCTCGACGCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTG
                                                                                                                                                                          GCCGGGAGAGCCTGACGCCGAGGACCGGC 307
                                                                                                                                                                                                                                                                                          GCCTGTTCGTCGAGACGTTCGGCACCGGCACCGTCGCCCAGGAGCGCATCGAGAAGGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 09/231,818
FILING DATE: 15-JAN-1999
APPLICATION NUMBER: US 08/403,852
FILING DATE: 10-MAY-195
APPLICATION NUMBER: PCT/FR 93/00923
FILING DATE: 25-SEP-1993
                                                                                                                                                                                                                TCACCGAGGTCTTCGACCTGCGCCCCGCGGCCATCATCCGCGACCTCGACCTGCTGCGGC 4656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE: (202) 408-4000
TELEFAX: (202) 408-4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENGTH: 5392 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 54; DB 20; I
Pred. No. 3.2e-05;
0; Mismatches 135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 5392;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                        4596
                                                                                                                                                                                                                                                                                                                                                                      4536
                                                                                                                                                                                                                                                                                                                                                                                                                                              4476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
APPLICANT: Farnet, Chris
APPLICANT: Staffa, Alfredo
APPLICANT: Zazopoulos, Emmanuel
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: BIOSYNTHETIC LOCI
FILE REPERENCE: 3001-7US
CURRENT APPLICATION NUMBER: US/10/107,431
CURRENT FILING DATE: 2002-03-28
NUMBER OF SEQ ID NOS: 282
SOFTWARE: Patentin version 3.0
SEQ ID NO 112
LENGTH: 837
TYPE: DNA
                                                                                                                                     밁
                                                                                                                                                                  Ś
                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                            á
Search completed: October Job time: 331.305 secs
                                                                                             δ
                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; ORGANISM: Streptomyces mobaraensis US-10-107-431-112
                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
                                                                  385
                                                                                                                                       331
                                                                                                                                                                       208
                                                                                                                                                                                                           271
                                                                                                                                                                                                                                          148
                                                                                                                                                                                                                                                                              211
                                                                                                                                                                                                                                                                                                                                                                                                                   147;
                                                                                                                                                                                                                                                                                                                                               88
                                                                                                                                                                                                                                                                                                                                                                                 28 CTGCGCGCGGAGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTGCGGCGCCGCATC 87
                                                                  CACGTGACGGACCCGGACACCCACCTGCGGGAGGCCCTCCGG
                                                                                                                                     AGCGCCCTGCCGGACGGCTCGTTCGACGGGATCCTCTC
                                                                                                                                                                       GAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGCCGCGTCGAGGAC 267
                                                                                                                                                                                                                                          GECCEGETCAGCCTEGTCAAGGACAGGCCCGCCGCTACGCCCGCCGACCACGGCCTCGAC 207
                                                                                                                                                                                                                                                                              ĠAĊTTĊĠĠĊĠĊĊĠĠĊAĊGTĊĠĊĊĊŢAĊĊGĊĠĠĊĊTĠĊTĊĊĊĠĠĠĊĠĊĠĊĠAĠĊTĠĠAĠAĊĊ
                                                                                                                                                                                                                                                                                                                GACCTCGGTGTCCGCATCGCGCGCTACAAGTCCCGGCACGGCGTCCCGATGATGCAGCCC
                                                                                                 cregreareaeccegeaeaeccreacecceaegaccege
                                                                                                                                                                                                         GCCGAGATGCGCGGCGGCGAGGACCTGACCGCCGACCACGAGCTGGACGCGGACGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                   52.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     17.2%;
              <u>ب</u>
              2005, 09:57:04
                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                 Score 53.6; DB 1
Pred. No. 4.5e-05
0; Mismatches 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FOR IDENTIFYING AND DISTINGUISHING ORTH
                                                                                                                                                                                                                                                                                                                                                                                                                   129;
                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 837;
                                                                    426
                                                                                                    309
                                                                                                                                       -- CACCCAGGTCCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                   6,
                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                           330
                                                                                                                                                                                                                                                                                                                147
                                                                                                                                       384
                                                                                                                                                                                                                                                                                270
                                                                                                                                                                                                                                                                                                                                                  210
```

Lyis Page Blank (uspto)

1)

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Run
                                                                                                                                                                                                                                                                                                                                                                             Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                Database
                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OM nucleic - nucleic search, using sw model
                                                          O
                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
 a a
                                              ი
                                                                     O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     on:
  2222211111111
22220987654321098765432
                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                          Score
                                      seq length: 0 seq length: 2000000000
 555555
                                                                                                                                                                                         Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-089-514-3
312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   October 4, 2005, 20:20:08 ; Search time 1179.85 Seconds (without alignments) 10065.737 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                 34239544 segs, 19032134700 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                         IDENTITY NUC
 Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                              Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                       atgaccgagcagaacgagct....cggccgaggaccggcggtga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Copyright
                                                                                                                                                                                                                                                           gb_est4:*
gb_est5:*
gb_est6:*
gb_gss1:*
gb_gss2:*
                                                                                                                                                                                                                                                                                                                 gb_est1:*
gb_est2:*
                                                                                                                                                                                                                                                                                                  _est3:*
GenCore version (c) 1993 - 2005
                                                                                                                                                                                          DΒ
CK849890
CR550517
AV666919
CL962625
BE484643
AV588862
AV609963
CK960904
CK940471
                                                                 CK981688
CO877281
CN436828
CO882659
CR552094
CC8574118
CR552761
CK849616
CR456310
                                                                                                                                           CL973370
CN434658
AV610217
CK979444
CK981592
                                                                                                                                                                                          U
                                                                                                                                                                                                                 SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                   68479088
                                   CR552761
CK849616
CR456310
CK849890
CK8550517
AV666919
CL962625
                                                                                                             CK979444
CK981592
CK981688
CO877281
CN436828
CO882659
                                                                                        CO874118
CR553143
                                                                                                                                                          CL973370
CN434658
AV610217
                                                                                                                                                                                         Description
                    AV666919
OBIFCC037
3 171374 BA
2 AV588862
                                                  4 4110945 B
4 4114069 B
3 4113939 B
3 4113939 B
3 4113939 B
3 HE04010B1
BE0VGEN 05
10 CR55200 10
10 CR55201 02
10 CR55311 3
10 CR55311 3
10 CR552761
10 972650 BA
10 973056 BA
10 CR55317
                                                                                                                                                           BE030008B
AV610217
                                                                                                                                                                          OSIFCC024
```

ი		ი	ი					a	O							ი			ი	
45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25
51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.8	51.8	52	52.6	52.6	53	53	53	53	50
16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.6	16.6	16.7	16.9	16.9	17.0	17.0	17.0	17.0	L/.0
1016	856	825	817	810	792	754	753	730	568	557	1518	420	403	953	812	766	723	703	700	7.89
φ	ဖ	φ	9	9	7	σ	σ	ø	۳,	N	9	μ,	7	9	æ	7	7	7	7	,
CC613501	CG221526	CG360167	CG217830	CG217836	CO894488	CA129331	CA129321	CG338179	AV610464	BE749820	CL966729	AJ475173	CN435245	CG447122	CC336291	CK848305	CK949352	CK971912	CK968936	CK96139/
CC613501	CG221526	CG360167	CG217830	CG217836	CO894488	CA129331	CA129321	CG338179	AV610464	BE749820	CL966729	AJ475173	CN435245	CG447122	CC336291	CK848305	CK949352	CK971912	CK968936	CK961397
OGVAS74TV	OGXAT27TV	OGYCJ28TH	OG1CH30Th	OGICH30TV	BovGen_22	SCRFLR203	SCRFLR203	OGYBP86TH	AV610464	200869 MA	OBIFCC014	AJ475173	BE030011A	OGVHX58TV	OGIAH61TH	971049 BA	4074664 B	4087757 B	4084284 I	4 TUZ5Z9 I

ALIGNMENTS

JOURNAL COMMENT RESULT 1
CL973370
LOCUS
DEFINITION В S S VERSION KEYWORDS ORIGIN FEATURES REFERENCE SOURCE ACCESSION Matches Query Match Best Local (TITLE AUTHORS ORGANISM source Ma,L., Wangc,J., Chen,C., Liu,X.; Su,N., Li,L., Wang,X., Cao,M.,
Jiao,Y., Sun,N., Zhang,X., Bao,Ji, Sun,D., Zhao,H., Yuan,L.,
Wong,G.K.S., Deng,X.W. and Wang,J.
An analysis of transcriptional regulation of the rice genome and
its comparison to Arabidopsis
L Unpublished (2004)
Contact: Chen Chen
Department of Bioinformatic
Beijing Institute of Genomics
Chinese Academy of Sciences, Beijing 101300, China
Tel: 86-10-8048159
Fax: 86-10-8048159 850 GAGGAAGAGAAGCGCCTCCTGCACTGCGTCGTCGTCGGCGGGGGTCCGACCGGGGTG 147; 76 CGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGTACAAGTCCCGGCACGGCGTCCCG 16 GAGCTGCAGCGGCGCGCGGAGCTCGACGCCCTCGACGGGACGCTCCTGGACACGGTG Oryza sativa (indica cultivar-gróup)
Oryza sativa (indica cultivar-gróup)
Cyza sativa (indica cultivar-gróup)
Eukaryota; Viridiplantae; Streptóphyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.
1 (bases 1 to 1686) CL973370 1686 bp DNA linear GSS 21-SEP OSIFCC024109 Oryza sativa Express Library Oryza sativa (indica cultivar-group) genomic, genomic survey sequence. Class: exon-trapped Rice genomic sequence. CL973370.1 GI:52401267 CL973370 Similarity Email: chenchen@genomics.org 19.0%; ilarity 50.2%; Conservative /organism="Oryza sativa (indica cultivar-group)"
/mol type="genomic DNA"
/db_xref="reaxon:39946"
/clone_lib="Oryza sativa Express Library"
/note="Oryza sativa exon trapped genomic sequences Location/Qualifiers .1686 0 Score 59.4; DB Pred. No. 0.006; 0; Mismatches 1 146; Indels 9; Length 1686; GSS 21-SEP-2004 0 Gaps Cao, M., and 135 909 75 0

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 2
CN434658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CN434658
CN434658.1 GI:46
EST.
Bos taurus (cow)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Funding for embryonic EST sequencing was provided by USDA ARS contract No. 58-1275-2-020 to H. A. Lewin. Base Calling/Quality Scores: PHRED from Washington University Genome Center. Vector Trimming: Cross match from Washington University Genome Center PHRAP suite. Sequences submitted are vector free and at least 200 bp in length with average PHRED score > 20. REPEAT IN THE SEQUENCE Low_complexity STRAND (+) ELEMENT GC_rich LOCATION [350,383].
                                                                                                                                                                                                                                                                                                                                                                                     Insert Length: 422 Std Error: (
Plate: BE030008B10 row: H colum
Seq primer: TAATACGACTCACTATAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Department of Animal Sciences
University of Illinois at Urbana-Champaign
206 Edward R. Madigan Laboratory, 1201 W. Gregory Dr.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hue,I., Tian,X.C., Liv
Bovine embryonic ESTs
Unpublished (2004)
Contact: Harris Lewin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BE030008B10H11
extraembryonic
                                                                                                                                                                                                                                                                                                                                                                                                                                                      FORWARD: CCAGTCACGACGTTGTAAAACGAC (M13 NIA-F)
BACKWARD: GTGTGGAATTGTGAGCGGATAACAA (M13 NIA-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: h-lewin@uiuc.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fax:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 (bases 1 to 422)
Lewin, H.A., Renard, J.P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCGTGGTGAAGGAGGTGAAGCCGAGGGAGATCGAGCTGAGCGACGGGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCGTCGAGGACCTGGTGATGAGCCGGGGAGGAGCCTGACGGCCGAGGACCGGCG 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCGGGCTGCGCCAGTACGCCACGGACCACCTCTCCAAGTACGGCGTGAACCTGGTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATCATCACGGAGATGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCAAGGACTACGTCAAGGTCACCCTCATCGAGGCCAACGAGATCCTCTCCTCCTTCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGTTCAGCGGCGAGCTCAGCGACTTCATCACCCGCGACGTGCGGGAGAGGTACGCTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217 333 5998
217 244 5617
                                                                                                                                                                                                                                                                                                                                                                    quality sequence stop: 422.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
/clone lib="BE03 Normalized and Subtracted bovine embryonic and extraembryonic tissue" /note="Vector: pgEMZf11(+); Site_1: EcoRI; Site_2: NotI; The cDNA library was constructed, normalized and subtracted by Dr. A. Hernandez, W.M. Keck Center, University of Illinois Urbana-Champaign and S. Degrelle,
                                                                                                                                                              /clone="BE030008B10H11"
/tissue_type="embryo (day 36 and day 64) and
extra-embryonic tissue (day 14 to 25) Normalized
subtracted library"
                                                                                                                                                                                                                                  /mol_type="max.../db_xref="taxon:9913"
/db_xref="taxon:9913"
                                                                                                                                         /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                             ocation/Qualifiers
                                                                                                                                                                                                                                                                                                 organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:46413922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422 bp mRNA linear EST 07-JUL-
BE03 Normalized and Subtracted bovine embryonic
tissue Bos taurus cDNA clone BE030008B10H11 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Liu, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                   Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Yang, X.J., Hernandez, A., and Everts, R.E.
                                                                                                                                                                                                                                                                                                                                                                                                                 column:
                                                                                                                                                                                                                                                                                                                                                                                         (Ŧ7
                                                                                                                                                                                                                                                                                                                                                                                                                                                           (M13 NIA-R)
                                                                                                                                                                                                                                                                                                                                                                                         PROMOTER)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Degrelle, S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST 07-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Urbana,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1142
                                                                                                                                                                                     and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 969
```

```
RESULT 3
AV610217/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŒYWORDS
                                                                                                                                                                                                                          JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 129;
                                                                                                                                                                                                        PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             138 GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGGCAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 CTCCTGGACACGCTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                              Animal Genetics Division
Shirakawa Institute of Animal Genetics
Odakura, Nishigo, Nishi-shirakawa, Fuku
Tel: 81-248-25-5641
Fax: 81-248-25-5725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCGCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA sequence.
AV610217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AV610217
AV610217 Bos taurus lung
Single pass sequencing. This clone was obtained
                                                                                                                                                                            Contact: Yoshikazu Sugimoto
                                                                                                                                                                                                   11713328
                                                                                                                                                                                                                                               Nucleic Acids Res. 29 (22), E108 (2001)
                                                                                                                                                                                                                                                                                         Establishment of a high throughput EST sequencing system using poly(A) tail-removed cDNA libraries and determination of 36,000
                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AV610217
AV610217.1
                                       Email: kazusugi@cocoa.ocn.ne
                                                                                                                                                                                                                                                                                                                                        and Sugimoto,Y.
                                                                                                                                                                                                                                                                                                                                                        Takasuga, A., Hirotsune, S., Itoh, R., Jitohzono, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bos taurus (cow)
                                                                                                                                                                                                                                                                       bovine ESTs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAGAAGGTCATCT 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGCTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCACGGAGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGTCCAACGTTCTGCGCGGCATGGGCGCCGCCTTCGTGCTGGTCCTCTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 653)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BDR, Institut National de la Recherche Agronomique, France, as described in Bonaldo, M.F., Lennon, G. and Soares, M.B. (1996), Genome Research 6(9): 791-806. This clone is from library BEO3, a normalized library of embryonic tissues subtracted with 7800 known placental EST sequences. The double stranded CDNA was size selected (more than 450 bp), adaptored with ECORI adaptors at both ends and then digested with NotI. The CDNA was then directionally cloned into ECORI-NotE digested pGEMIIZF(+) phagemid vector. Insert size was between 450-2200 bp. Sequencing was done from the 5' end of the Clone. Tagged oligo-dT was used to identify the source of the ESTs where possible. (AlB)TGCGT = extraembryonic tissue; (AlB)TGCGT= 36-day old fetus; (AlB)TGCGA = 64-day old fetus (body)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GI:9745887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17.5%;
51.0%;
obtained from a polyA-deleted cDNA library.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 54.6;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          653 bp
fetus Bos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .071;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
                                                                                                             Fukushima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                             961-8061,
                                                                                                                                                                                                                                                                                                                                                          Suzuki, H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E1LU031A01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                          Aso, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
```

밁 S 밁 8 밁 8

5

밁

밁

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 4
CK979444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 129; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                       Smail: tads@anri.barc.usda.gov
Single pass sequencing. Bases called and trimmed with phred
0.00925 using options trim_alt "-trim_fasta. Vector ident
by cross_match using options -minmatch 12 -minscore 12
plate: 39 row: H Column: 08
Seq primer: CCCGGTCACGACGTGTAAAAACG
High quality sequence_stop: 678.
                                                                                                                                                                                                                                                                             Contact: Tad S. Sonstegard
Bovine Functional Genomics Laboratory
Animal and Natural Resources Institute
Bdlg. 200 Rm2A BARC-East, Beltsville, v
Tel: 3015048416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence.
CK979444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 (bases 1 to 678)
Sonstegard, T.S., Van Tassell, C.P., Matukumal
G.P., Bosak, S., Rubenfield, M. and Gasbarre,
Production of EST from cDNA libraries derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CK979444
4110945 BARC 9BOV Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                     activated bovine gut
Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CK979444.1 GI:45497424
                                                                                                                                                                                                                                                            Fax: 3015048414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCTACGCCGACCACCGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGCCGCCAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            crecregacacegeseses contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and contracted and c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGATCGCGCAGACCGTGACGGCCGTGGCGGGGGTGGTCTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGAAGGTCATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGTCCAACGTTCTGCGCGGCATGGGCGGCGCCTTCGTGCTGGTCCTCTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           taurus (cow)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone_lib="Bos taurus lung fetus"
/note="Vector: pZL1; Site_1: Sal1; Site_2: Not1; Poly A
was deleted from a Not1 site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /mol_
                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="lung"
/dev_stage="fetus"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Bos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone="E1LU031A01"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     _type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 54.6; DB 1;
Pred. No. 0.069;
0; Mismatches 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     bp mRNA linear EST
cDNA clone 9BOV39_H08 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matukumalli, L.K., Harhay,
Gasbarre, L.C.
                                                                                                                                                                                                                                                                                                             MD 20705,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST 16-MAR-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                        identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 5
CK981592
                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         μ
Seq primer:
```

```
541 TGGTCCAACGTTCTGCGCGGCATGGGCGGCGCCTTCGTGCTGGTCCTCTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           129;
                                                                                                                                                                                                                                                              1 (bases 1 to 678)
Sonstegard, T.S., Van Tassell, C.P., Matukumalli, L.K., G.P., Bosak, S., Rubenfield, M. and Gasbarre, L.C.
Production of EST from cDNA libraries derived from immusactivated bovine gut
Unpublished (2004)
                Single pass sequencing. Bases called and trimmed with phred 0.000925 using options -trim alt " -trim fasta. Vector ident by cross match using options -minmatch 12 -minscore 12 plate: 43 row: J column: 12
                                                                                                                                                                        Contact: Tad S. Sonstegard
Bovine Functional Genomics Laboratory
Animal and Natural Resources Institute
Bdlg. 200 Rm2A BARC-Bast, Beltsville, I
                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence.
CK981592
                                                                                                            Email: tads@anri.barc.usda.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CK981592.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4114069 BARC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CK981592
                                                                                                                                 Fax: 3015048414
                                                                                                                                                        Tel: 3015048416
                                                                                                                                                                                                                                                                                                                                                                                                  Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                     Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bos taurus (cow)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGAAGGTCATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGGCAAGGCCTTCTTCAAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cegcacegerecegarearecegecegereageceregereagecegereagecegecege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGCGGCGCATGATGATGCAGTCGGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGACCGAGCAGAACGAGCTGCAGCGCCTGCGCCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /tissue_type="Pooled"
/dev_stage="Multiple"
/lab_host==DH10B Tl phage resistant"
/clone_lib="BARC_9BOV"
/clone_lib="BARC_9BOV"
/note="Organ: Abomasum; Vector: pAgen-1; Site_1: EcoRV;
Site_2: Not1; Equimolar amounts of mRNA extracted from fundic and pyloric abomasums of 18 and 21 week old steer Exposure to Ostertagia ostertagi was initiated at 15 wee of age. fundic and pyloric abomasum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Bos taurus"
/mol_type="mRNA"
/strain="Holstein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone="9BOV39_H08"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'sex="Male"
CCCAGTCACGACGTTGTAAAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:45499572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VOB6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 54.6; DB 7;
Pred. No. 0.069;
0; Mismatches 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bp mRNA
cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124;
                                                                                                                                                                               ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . linear EST 16-MAR-2004
9BOV43_J12 5', mRNA
                                                                                                                                                                               20705, USI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                          from immunologically
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       678;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ted from cold steers.
                                                                identified
                                                                                                                                                                                                                                                                                                                                                                                                                           Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
RESULT 6
CK981688
                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                 COMMENT
                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Simi
Matches 129;
                                                                                                                                                JOURNAL
                                                                                                                                                                               TITLE
                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Н
                                                                          Contact: Tad S. Sonstegard
Bovine Functional Genomics Laboratory
Animal and Natural Resources Institute
Bdlg. 200 Rm2A BARC-East, Beltsville, N
                                                                                                                                           1 (bases 1 to 696)
Sonstegard, T.S., Van Tassell, C.P., Matukumalli, L.K., Harhay, G.P., Bosak, S., Rubenfield, M. and Gasbarre, L.C.
Production of EST from cDNA libraries derived from immunologically activated bovine gut
Unpublished (2004)
   Single pass sequencing. 0.000925 using options -
                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutel
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora;
                                                                                                                                                                                                                                                                                                                         EST
                                                                                                                                                                                                                                                                                                                                                                                        CK981688
4113939 BARC 9BOV
                                 Email: tads@anri.barc.usda.gov
                                                 Fax: 3015048414
                                                                                                                                                                                                                                            Bovinae; Bos
                                                                                                                                                                                                                                                                                            Bos taurus
                                                                                                                                                                                                                                                                                                           Bos taurus (cow)
                                                                                                                                                                                                                                                                                                                                           CK981688.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGTCCAACGTTCTGCGCGCGCATGGGCGCGCGCCCTTCGTGCTGGTCCTTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGGCAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC

¿TCCTGGAÇACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTCGTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAGAAGGTCATCT 352
                                                                3015048416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             quality sequence stop: 678.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
 using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="Organ: Abomasum; Vector: pAgen-1; Site_1: Ec Site 2: NotI; Equimolar amounts of mRNA extracted fundic and pyloric abomasums of 18 and 21 week old Exposure to Ostertagia ostertagi was initiated at of age. fundic and pyloric abomasum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /strain="Holstein"
/db_xref="taxon:9913"
/clone="9BOV43_J12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /lab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /dev
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tissue_type="Pooled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /sex="Male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _stage="Multiple"
_host="DH10B T1 phage resistant"
ne_lib="BARC 9BOV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _type="mRNA"
quencing. Bases called and options -trim_alt " -trim_
                                                                                                                                                                                                                                                                                                                                                                                        Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches 124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 54.6; DB 7; Pred. No. 0.069;
                                                                                                                                                                                                                                                                                                                                                                                                       696
                                                                                                                                                                                                                                                                                                                                                                                      bp
cDNA
                                                                                                                                                                                                                                                                                                                                                                                        clone
 ed and trimmed with phred 
-trim_fasta. Vector identified
                                                                                 ₹
                                                                                                                                                                                                                                                                                                                                                                                    linear EST 16-MAR-2004
9BOV43_E02 5', mRNA
                                                                               20705,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          678;
                                                                                                                                                                                                                                                                          Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d steers.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                       RESULT 7
CO877281/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                COMMENT
                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                        POCAR
                                                                                                             JOURNAL
                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
```

```
Matches 129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                             712 bp mF BovGen_05606 normal cattle brain Bos RZPDp105601856Q 3', mRNA sequence. CO877281 CO877281.1 GI:51807196 EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71
                                                                                                                                                1 (bases 1 to 712)
Hennig,S., Janitz,M., Herwig,R.
Generation, annotation, evolutio
integration of 14969 cattle EST
Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   by cross match using options -minmat 
Plate: 43 row: B column: 0.2
Seq primer: CCCAGTCATGACGTTGTAAAACG
High quality sequence stop: 696.
                  Max-Planck-Institut fuer Molekulare Genetik
Ihnestr.63-73, D-14195 Berlin, Germany
Tel: +49 30 8413 1612
Fax: +49 30 8413 1380
                                                                                                         Contact: Hennig S
laboraty 123, dept.Lehrach
                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                    Bos taurus
                                                                                                                                                                                                                                                                  Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                       Bos taurus (cow)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCACGGCGTCCCGATGATGCAGCCCGGCCCGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGACCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGAAGGTCATCT 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGTCCAACGTTCTGCGCGGCATGGGCGGCGGCGTCCTTCGTGCTGGTCCTCTACGACCAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGÁCTGCTGGCGÁAGÁTCCTCAAGGACGAGGGCGGCAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ÇTCÇTGGAÇACGGTGCGGCGCCGCATCGAÇCTCGGTGTCCGÇATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
hennig@molgen.mpg.de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clome_lib="BARC 9BOV"
/note="Organ: Abomasum, Vector: pAgen-1; Site_1: EcoRV;
/note="Organ: Abomasum of mRNA extracted from
Site_2: Not1; Equimolar amounts of mRNA extracted from
fundIc and pyloric abomasums of 18 and 21 week old steers.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Exposure to Ostertagia ostertagi was initiated at 15 of age. fundic and pyloric abomasum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /dev_stage="Multiple"
/lab_host="DH10B T1 phage resistant"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="Holstein"
/db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'tissue_type="Pooled"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'sex="Male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              clone="9BOV43_E02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ,
                                                                                                                                                                                             Herwig,R. and Williams,J
n, evolutionary analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 54.6; DB 7;
Pred. No. 0.069;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -minmatch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                  and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-SEP-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
```

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 8
CN436828
                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                            ACCESSION
                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 129; Conserv
                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                            CN436828 714 bp mRNA linear EST 07-JUL-20 BE04010B1F12 BE04 Normalized and Subtracted bovine embryonic and extraembryonic tissue Bos taurus cDNA clone BE04010B1F12 5', mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The library was characterised by oligonucleotide fingerprinting (ONFP) to reduce sequencing redundancy. According to the ONFP procedure, clones that display the same hybridisation matrix with a battery of 200 8mer oligonucleotides are grouped into clusters. One clone per ONFP cluster was selected for sequencing. cDNA clones and filters are distributed via Deutsches Ressourcenzentrum fuer
                                                                                                                                                                                                                                                                sequence.
CN436828
CN436828.1 GI:46416092
                  Bovine embryonic ESTs
Unpublished (2004)
                                                            1 (bases 1 to 714)
Lewin, H.A., Renard, J.P.,
Hue, I., Tian, X.C., Liu, L
                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                  Bos taurus (cow)
                                                                                                                                                                                                                                                TSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FORWARD: 5' CCCCAGGCTTTACACTTTATGCTTCCGGCTCG 3' (M13FSP) 5'-8eq BACKWARD: 5' GCTATTACGCCAGCTGGCGAAAGGGGGATGTG 3' (M13FSP) 3'-8eq Seq primer: 5' GCTATTACGCCAGCTGGCGAAAGGGGGATGTG 3' (M13FSP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genomforschung GmbH (http://www.rzpd.de).
PCR PRimers
                                                                                                                                 Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    crccreeacacearececacacearceaererececarcececarececeracaaerec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGGCAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGATCGCGCAGACCGTGACGGCCGTGGCGGGGGTGGTCTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGAAGGTCATCT 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGGTCCAACGTTCTGCGCGGCATGGGCGGCGCCTTCGTGCTGGTCCTCTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="Organ: brain; Vector: pSport1; Site 1: Not1; Site 2: Sal1; Random primed and directionally cloned in pSport1 vector using Not1 (5'-pGACTAGATCGCGAGCGGGCGCCC (T)15-3' and Sal1 5'-TCGACCCCGCGCCCG-3' adapters (Gibco BRL)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /dev_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /mol_type="mRNA"
/db_xref="taxon:9913"
/clone="RZPDp1056J1856Q"
/sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        crone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tissue_type="brain tissue"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _stage="adult brain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lib="normal cattle brain"
                                                                Liu, L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 54.6; DB Pred. No. 0.069;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                Yang, X.J., H. and Everts,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 7;
                                                                Hernandez,A.,
s,R.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 712;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                   Degrelle, S.,
                                                                                                                                                                                                                                                                                                                                                                             EST 07-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and SalI 5'-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
```

Ś

멍 8 밁 S 밁

8 밁

Snoor

á

밁

Ś

밁

밁

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                     181
                                                                                                                                                                                                                                                                                          107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             129;
                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Funding for embryonic EST sequencing was provided by USDA ARS contract No. 58-1275-2-020 to H. A. Lewin. Base Calling/Quality Scores: PHRED from Washington University Genome Center. Vector Trimming: Cross match from Washington University Genome Center PHRAP suite. Sequences submitted are vector free and at least 200 bp in length with average PHRED score > 20. REPEAT IN THE SEQUENCE Low complexity STRAND (+) ELEMENT GC_rich LOCATION [385,418].
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FORWARD: CCAGTCACGACGTTGTAAAACGAC (M13 NIA-F)
BACKWARD: GTGTGGAATGTGAGCGGATTACAA (M13 NIA-F)
INSERT LENGGTH: 7.14 Std Error: 0.00
Plate: BE04010B1 row: F column: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tel: 217 333 5998
Fax: 217 244 5617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Department of Animal Sciences
University of Illinois at Urbana-Champaign
206 Edward R. Madigan Laboratory, 1201 W. Gregory Dr.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: h-lewin@uiuc.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61801,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
        CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                        CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC 180
                                                                                                                                                                                                                                                                                                                                                                    CTCCTGGACACGGTGCGGCGCCCCCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                      CGGCGGCGCATGATGATGCAGTCGGGGCGCCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          te: BE04010B1 row: F column:
    primer: TAATACGACTCACTATAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 quality sequence stop: 714.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone lib==BE04 Normalized and Subtracted bovine
embryonic and extraembryonic tissue"
/note="Vector: pGEMZf11(+); Site_1: EcoRI; Site_2: NotI;
/note="Vector: pGEMZf11(+); Site_1: EcoRI; Site_2: NotI;
/note="Vector: pGEMZf11(+); Site_1: EcoRI; Site_2: NotI;
/note="Vector: pGEMZf11(+); Site_1: EcoRI; Site_2: NotI;
/note="Vector: pGEMZf11(+); Site_1: EcoRI; Site_2: NotI;
/note="Vector: pGEMZf11(+); Site_1: EcoRI; Site_2: NotI;
/note="Vector: pGEMZf11(+); Site_1: EcoRI; Site_2: NotI;
/note="Vector: pGEMZf11(+); Site_2: NotI;
/note="Vector: pGEMZf11(+); Site_2: NotI; Site_2: NotI; Site_2: NotI; Site_2: NotI; Site_2: NotI; Site_2: NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; NotI; No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /tissue_type="embryo (day 36 and day 64) and
extra-embryonic tissue (day 14 to 25) Normalized and twice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     subtracted library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            clone="BE04010B1F12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _type="mRNA"
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 54.6; DB Pred. No. 0.069;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (M13 NIA-R)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROMOTER)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           714;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Urbana,
                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                 106
                                                                                                                                  226
                                                                                                                                                                                                                                                                                          166
                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             I
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 9
             S
                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Snoo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             227
                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: hennig@molgen.mpg.de
The library was characterised by oligonucleotide fingerprinting
(ONFP) to reduce sequencing redundancy. According to the ONFP
procedure, clones that display the same hybridisation matrix with a
battery of 200 8mer oligonucleotides are grouped into clusters. One
clone per ONFP cluster was selected for sequencing. cDNA clones and
filters are distributed via Deutsches Ressourcenzentrum fuer
Genomforschung GmbH (http://www.rzpd.de).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 738)
Hennig,S., Janitz,M., Herwig,R. and Williams,J.
Generation, annotation, evolutionary analysis and database
integration of 14969 cattle EST clusters
Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CO882659 738 bp mRNA linear ES' BovGen 10984 normal cattle brain Bos taurus cDNA clone RZPDp1056D1724Q 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max-Planck-Institut fuer Molekulare Genetik
Ihnestr.63-73, D-14195 Berlin, Germany
Tel: +49 30 8413 1612
Fax: +49 30 8413 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Hennig S
laboraty 123, dept.Lehrach
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CO882659
CO882659.1 GI:51812591
EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FORWARD: 5' CCCCAGGCTTTACACTTTATGCTTCCGGCTCG 3' (M13FSP) 5'-seq BACKWARD: 5' GCTATTACGCCAGCTGGCGAAAGGGGGATGTG 3' (M13FSP) 3'-seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Seq primer: 5'-CCGGTCCGGAATTCCCGGGT-3'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bos taurus (cow)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bovinae; Bos
                                                                                                                                                                                                                                                crecregacaceses en contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata del contrata del contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata del contrata del contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata del contrata del contrata de la contrata de la contrata del contrata del contrata de la contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       атоассоаосаостось образование в распечение 
CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                  CGGCGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC 177
                                                                                                                                                                                                                                                                                                                                                                                         ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGAAGGTCATCT 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGGTCCAACGTTCTGCGCGGCATGGGCGGCGCCTTCGTGCTGGTCCTCTACGACGAGCTC 286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone lib="normal cattle brain"
/clone lib="normal cattle brain"
/note="Organ: brain; Vector: pSport1; Site 1: Not1;
Site 2: Sal1; Random primed and directionally cloned in pSport1 vector using Not1
(5'-pGACTAGTTCTAGATCGCGAGCGGCCCC (T)15-3' and Sal1 5'-TCGACCCACGCGTCCG-3' adapters (Gibco BRL)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /tissue_type="brain tissue"
/dev_stage="adult brain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /mol_type="mRNA"
/db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             clone="RZPDp1056D1724Q"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17.5%;
51.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 54.6; DE Pred. No. 0.069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.069;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 7; Length 738;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   124; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (M13RSP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EST 01-SEP-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                  117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
```

```
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 10
CR552094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POCUS
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: renard@jouy.inra.fr
Funding for EST sequencing was provided by funds dedicated to
J.P.RENARD (BDR, Inra). Funding for construction and subtraction of
the cDNA library was provided by USDA ARS contract No 58-1275-2-020
to H. A. Lewin The cDNA library was constructed, normalized and
subtracted by Dr. A. Hernandez (W.M. Keck Center, University of
Illinois Urbana-Champaign) and S. Degrelle (BDR, Inra) as described
in Bonaldo et al. (1996), Genome Research 6, 791-806. BE03 library
is a normalized library of embryohic tissues subtracted with 7800
known EST sequences. The double-stranded cDNA was size selected
(>450 bp), adaptored with EcoRI adaptors at both ends and digested
with NotI. The cDNA was then directionally cloned into EcoRI-NotI
digested pgBM1Zf(+) phagemid vector. Insert size was between
450-2200 bp. Sequence cleaned of Vector, adaptator and repetitions.
Contact us at sigenasupport@jouy.inra.fr to obtain the chromatogram
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241 ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              178 GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGAAGGCCTTCTTCAAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Embryonic ESTs (bcaz)
Unpublished (2004)
Contact: Renard JP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5', mRNA sequence.
CR552094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CR552094 Normalized and extraembryonic tissues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of this sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biologie du Developpement et Reproduction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Renard, J.P., Lewin, H.A., Everts, R.E. and Hue, I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CR552094.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Domaine de Vilvert 78350 Jouy en Josas, FRANCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bos taurus (cow)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCTACGCCGCCGACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAGAAGGTCATCT 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TEGTCCAACGTTCTGCGCGGCATGGGCGCGCCCTTCGTGCTGGTCCTCTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 740)
                                                                                                        /clone lib="Normalized and Subtracted bovine embryonic and extraembryonic tissues (bcaz)"
/note="Vector: pGEMZfi1; Tagged oligo-dT was used to identify the origin of the ESTs where possible. (A18)TGCGT extraembryonic tissue; (A18)TCGGT = 36-day oldfetus; (A18)TGCGA = 64-day old fetus (organs); (A18)TCGGA = 64-day old fetus (body)"
                                                                                                                                                                                                                                                                                                                            /tissue_type="embryo (day 36 and day 64), extra-embryonic
tissue (day 14 to 25)"
                                                                                                                                                                                                                                                                                                     /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                 clone="bcaz0007a.j.09"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Bos taurus'
                                                                                                                                                                                                                                                                                                                                                                                                             l_type="mRNA"
_xref="taxon:9913"
17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 740 bp mRNA linear and Subtracted bovine embryonic ues (bcaz) Bos taurus cDNA clone
Score 54.6;
Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Yang, J.,
  6; DB 7;
0.069;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hernandez, A., Degrelle, S
                            Length 740;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST 12-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 237
```

Matches 129;

Conservative

Mismatches

124;

0

Gaps

0

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 11
CO874118
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
ORIGIN
                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CO874118
CO874118.1 GI:51803967
EST.
Bos taurus (cow)
Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                       The library was characterised by oligonucleotide fingerprinting (ONFP) to reduce sequencing redundancy. According to the ONFP procedure, clones that display the same hybridisation matrix with battery of 200 8mer oligonucleotides are grouped into clusters. On clone per ONFP cluster was selected for sequencing. cDNA clones an filters are distributed via Deutsches Resecurcenzentrum fuer Genomforschung GmbH (http://www.rzpd.de).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hennig,S., Janitz,M., Herwig,R. and Williams,J. Generation, annotation, evolutionary analysis a integration of 1496 cattle EST clusters Unpublished (2004) Contact: Hennig S
                                                                                                                                                                                                                                                                                                                                       BACKWARD: 5' GCTATTACGCCAGCTGGCGAAAGGGGGATGTG 3' Seq primer: 5'-CCGGTCCGGAATTCCCGGGT-3' (M13RSP).
                                                                                                                                                                                                                                                                                                                                                        FORWARD: 5' CCCCAGGCTTTACACTTTATGCTTCCGGCTCG 3' (M13FSP) 5'-8eq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: hennig@molgen.mpg.de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ihmestr.63-73, D-14195 Berlin, Germany
Tel: +49 30 8413 1612
Fax: +49 30 8413 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 laboraty 123, dept.Lehrach
Max-Planck-Institut fuer Molekulare Genetik
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BovGen_02443 normal
RZPDp1056J1856Q 5',
                                                                                                                                                                                                                                                                                                                                                                                                         PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGCCGCC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCACGGAGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGGCAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGAAGGTCATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCTACGCCGGCCGACGACGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCTTCGACACCGTG 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGTCCAACGTTCTGCGCGCGTGGGCGGCGCCTTCGTGCTGGTCCTCTACGACGAGCTC 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 745)
           /tissue_type="brain tissue"
/dev_stage="adult brain"
/clone_lib="normal cattle brain"
/note="Organ: brain; Vector: pSportl; Site_1: NotI;
Site_2: SalI; Random primed and directionally cloned in
pSportl vector using NotI
(5'-pGACTAGTTCTAGATCGCGAGCGGCCCC (T)15-3' and SalI 5'-
TCGACCCACGCGTCCG-3' adapters (Gibco BRL)"
                                                                                                                                                                                                                                /mol_type="mRNA"
/db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                   ocation/Qualifiers
                                                                                                                                                                                          sex="female"
                                                                                                                                                                                                            clone="RZPDp1056J1856Q"
                                                                                                                                                                                                                                                                           organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata; Craniata; Vertebrata; Euteleostomi; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                745 bp mRNA linear ES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST 01-SEP-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
```

```
RESULT 12
CR553143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 129; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                  source
                                                                                                                                                                                                  Email: renardejouy inva.fr
Funding for EST sequencing was provided by funds dedicated to
J.P.RENARD (BDR, Inra). Funding for construction and subtraction of
the cDNA library was provided by USDA ARS contract No 58-1275-2-020
to H. A. Lewin The cDNA library was constructed, normalized and
subtracted by Dr. A. Hernandez (W.M. Keck Center, University of
Illinois Urbana-Champaign) and S. Degrelle (BDR, Inra) as described
in Bonaldo et al. (1996), Genome Research 6, 791-806. BE03 library
is a normalized library of embryonic tissues subtracted with 7800
known EST sequences. The double-stranded cDNA was size selected
(>450 bp), adaptored with EcoRl adaptors at both ends and digested
with NoII. The cDNA was then directionally cloned into EcoRl-NoII
digested pGBM1Zf(+) phagemid vector. Insert size was between
450-2200 bp. Sequence cleaned of vector, adaptator and repetitions.
Contact us at sigenasupport@jouy.inra.fr to obtain the chromatogram
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -
                                                                                                                                                                                           of this sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CR553143 Normalized and Subtracted bovine embryonic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Biologie du Developpement et Reproduction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Embryonic ESTs (bcaz)
Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Renard, J.P., Lewin, H.A., Yang, J., Everts, R.E. and Hue, I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Crâniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Domaine de Vilvert 78350 Jouy en Josas, FRANCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bos taurus (cow)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CR553143.1 GI:50248053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   extraembryonic tissues (bcaz) Bos taurus cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGTCCAACGTTCTGCGCGGCATGGGCGCGCGCCTTCGTGCTGGTCCTCTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGCACGGCTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGCCGCC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGACCGAGCAGAACGAGCTGCAGCGGCGCGCGCGGAGCTCGACGCGCCTCGACGGGACG 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGAAGGTCATCT 718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGCAAGGCCTTCTTCAAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCTTCGACACCGTG 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 754)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Renard JP
/tissue_type="embryo (day
tissue (day 14 to 25)"
                                             /clone="bcaz0010a.m.23"
                                                                    /mol_type="mRNA"
/db_xref="taxon:9913"
                                                                                                                    organism="Bos
                                                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 54.6; DB 7;
Pred. No. 0.069;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hernandez, A., Degrelle, S.,
                      36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   124;
                      and day 64), extra-embryonic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bcaz0010a.m.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST 12-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     585
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 13
CR552761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Email: renard@jouy.inra.fr
Funding for EST sequencing was provided by funds dedicated to
J.P.RENARD (BDR, Inra). Funding for construction and subtraction of
J.P.RENARD (BDR, Inra). Funding for construction and subtraction of
the cDNA library was provided by USDA ARS contract No 58-1275-2-020
to H. A. Lewin The cDNA library was constructed, normalized and
subtracted by Dr. A. Hernandez (W.M. Keck Center, University of
Illinois Urbana-Champaign) and S. Degrelle (BDR, Inra) as described
in Bonaldo et al.(1996), Genome Research 6, 791-806. BE03 library
is a normalized library of embryonic tissues subtracted with 7800
known EST sequences. The double-stranded cDNA was size selected
(>450 bp), adaptored with EcoRI adaptors at both ends and digested
with NotI. The cDNA was then directionally cloned into EcoRI-NotI
digested pGEM112f(+) phagemid vector. Insert size was between
450-2200 bp. Sequence cleaned of vector, adaptator and repetitions.
Contact us at sigenasupport@jouy.inra.fr to obtain the chromatogram
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CR552761 788 bp mRNA linear CR552761 Normalized and Subtracted bovine embryonic extraembryonic tissues (bcaz) Bos taurus cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      extraembryonic tissues 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Biologie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Embryonic ESTs (bcaz)
Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Renard, J.P., Lewin, H.A., Everts, R.E. and Hue, I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bos taurus (cow)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CR552761.1 GI:50247671
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                         Domaine de Vilvert 78350 Jouy en Josas, FRANCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CR552761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGGCAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCCTGGACACGCGCGCGCGCGCATCGACCTCGGTGTCCGCATCGCGCGCTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGAAGGTCATCT 353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGTCCAACGTTCTGCGCGGCATGGGCGGCGCCTTCGTGCTGGTCCTCTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 788)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           du Developpement et Reproduction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Renard JP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /clone_lib="Normalized and Subtracted bovine embryonic and extraembryonic tissues (bcaz)" /note="Vector: pEEMZEL1; Tagged oligo-dT was used to identify the origin of the ESTs where possible. (A18)TGCGT = axtraembryonic tissue; (A18)TCGGT = 36-day oldfetus; (A18)TGCGA = 64-day old fetus (organs); (A18)TCGGA = 64-day old fetus (body)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 54.6; DB Pred. No. 0.069;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Yang, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hernandez, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Degrelle, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST 12-JUL-2004
: and
: bcaz0007a.p.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
```

COMMENT

TITLE

밁 á В Ś

맑 Ś

VERSION

Ś

멍 Ś ORIGIN

밁

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CK849616/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loca
Matches
                                                                                                                                                                          JOURNAL MEDLINE
                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                         DEWED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            264 GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGGCAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                       I (bases I to 806)
Sonstegard, T., Capuco, A.V., White, J., Van Tassell, C.B.
Connor, E.E., Cho, J., Sultana, R., Shade, L., Wray, J.E.,
and Quackenbush, J.
Analysis of bovine mammary gland EST and functional ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCCTCGACGGGACG
                                                                                             Contact: Sonstegard TS
USDA, ARS, Beltsville Agricultural Research
Bdlg. 200 Rm 2A, Beltsville, MD 20705, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CK849616 806 bp mRNA linear 972650 BARC 5BOV Bos taurus cDNA 3', mRNA sequence. CK849616
Email: tads@lpsi.barc.usda.gov
Single pass sequencing. Bases called with phred v0.020425.c and
trimmed with the aid of the trim_alt option. Vector identified with
                                                              Tel: 301 504 8416
Fax: 301 504 8414
                                                                                                                                                                                            the Bos taurus gene index
Mamm. Genome 13 (7), 373-379
                                                                                                                                                                                                                                                                                                                                                                                 Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                         CK849616.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ě
                                                                                                                                                                                                                                                                                                                            Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                            Mammalia; Eutheria; Cetartiodactyla;
                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                      Bos taurus (cow)
                                                                                                                                                         12140684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAGAAGGTCATCT 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ceeca,ceecerceearea,rea,recaececeeceeercaecereercaeecea,caeeeceecee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGTCCAACGTTCTGCGCGGCATGGGCGGCGCCTTCGTGCTGGTCCTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone_lib="Normalized and Subtracted bovine embryonic extraembryonic tissues (bcaz)"
/note="Vector: pgEMRZf11; Tagged oligo-dT was used to identify the origin of the ESTs where possible. (A18)TC extraembryonic tissue; (A18)TCGGT = 36-day oldfetus; (A18)TCGGA = 64-day old fetus (organs); (A18)TCGGA = 64-day old fetus (body)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone="bcaz0007a.p.12"
/tissue_type="embryo (day
tissue_(day 14 to 25)"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /mol_type="mRNA"
/db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Bos"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                         GI:45213001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 54.6; DB Pred. No. 0.069;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                              (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  36 and
                                                                                                                                                                                                                                                                                                                                              Ruminantia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  124;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    day 64),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                    Center
                                                                                                                                                                                                                                                                                                                                              Pecora;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    extra-embryonic
                                                                                                                                                                                                                                   annotation of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                    Wells, K.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                              Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (A18) TGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
CR456310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 129;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                      CR456310
CR456310.1
EST
Domaine de Vilvert 78350 Jouy en Josas, FRANCE Email: renard@jouy.inra.fr
Email: renard@jouy.inra.fr
Funding for EST sequencing was provided by a Genanimal contract from FNS- Ministere de la Recherche (INRA, Num: A02085). Funding for construction and subtraction of the cDNA library was provided by USDA ARS contract No. 58-1275- 2-020 to H. A. Lewin The cDNA library was constructed, normalized and subtracted by Dr. A. Hernandez (W.M. Keck Center, University of Illinois Urbana-Champaign) and S. Degrelle (BDR, Inra) as described in
                                                                                                                                                                                                   Contact:
Biologie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CR456310 Normalized and extraembryonic tissues 5', mRNA sequence.
                                                                                                                                                                                                                                                          Renard, J.P., Lewin, H.A., Everts, R.E. and Hue, I. Embryonic ESTs (bcaz)
                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                 Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cross_match v0.990329.
Plate: 116 row: C cc
Seq primer: GTAATACGAC
                                                                                                                                                                                                                                              Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                           Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                        Bos taurus (cow)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGCGAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCCTGGACACGCTGCGGCGCCCCCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAGAAGGTCATCT 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCACGGAGATGT 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGTCCAACGTTCTGCGCGCGCATGGGCGCGCGCCTTCGTGCTGGTCCTCTACGACGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCTACGCCGGCCGACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGATCGCGCAGACCGTGACGGCCGTGGCGGCGTGGTCTCCTACCCCTTCGACACCGTG 585
                                                                                                                                                                                                                                                                                                                   (bases 1 to 812)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     primer: GTAATACGACTCACTATAGGG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                   du Developpement et Reproduction
                                                                                                                                                                                                                            Renard JP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note=Tvector: pCMV SPORT6; Site 1: Not1; Site 2: Sall; Library made from pooled mRNA isolated from mammary tissues at eight physiological, developmental, and disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /tissue_type="pooled"
/lab_host="DH10B"
/clone_lib="BARC_5BOV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Bos taurus"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        db_xref="taxon:9913"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . .806
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GI:49624699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and Subtracted bovine embryonic embryonic cone (bcaz) Bos taurus cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         column: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 54.6; DB 7;
Pred. No. 0.068;
0; Mismatches 124;
                                                                                                                                                                                                                                                                                                  Yang, J.,
                                                                                                                                                                                                                                                                                                  Hernandez, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                Degrelle, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST 02-JUL-2004
c and
bcaz0018e.n.09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
```

Search completed: October Job time: 1184.18 secs

5

2005,

09:01:11

맑 Ś 밁 Ş 문 S 밁 S 밁

```
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         / Match 17.5%;
Local Similarity 51.0%;
les 129; Conservative
390
                                             241 ATCACGGAGATGT
                                                                                                                               181 CGCTACGCCGCCGACCACGGCCTCGACGACGATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                               270 GTGGACTGCTGGCGGAAGATCCTCAAGGACGAGGGCGGCAAGGCCTTCTTCAAGGGCGCC
                                                                                                                                                                                                                                       121 CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGCCGCC
                                                                                                                                                                                                                                                                                             210
                                                                                                                                                                                                                                                                                                                                                                                              150
                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                                                                                                                         1 ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bonaldo et al. (1996), Genome Research 6, 791-806. BE04 library is a normalized library of embryonic tissues subtracted with 7800 known EST sequences. The double- stranded cDNA was size selected (>450 bp), adaptored with EcoRI adaptors at both ends and digested with NotI. The cDNA was then directionally cloned into EcoRI-NotI digested pGEM12f(+) phagemid vector. Insert size was between 450-2200 bp. Sequence cleaned of vector, adaptator and repetitions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of this sequence.
AAGAAGGTCATCT
                                                                                              TGGTCCAACGTTCTGCGCGGCATGGGCGGCGCCTTCGTGCTGGTCCTCTACGACGAGCTC
                                                                                                                                                                                                                                                                                          CGGCGGCGCATGATGATGCAGTCGGGGCGCAAAGGAGCCGACATCATGTACAAGGGCACC
                                                                                                                                                                                                                                                                                                                                           crecregacacegreecececareaceregarerececaricececariceceracaaerec
                                                                                                                                                                                                                                                                                                                                                                                              ATGATCGCGCAGACCGTGACGGCCGTGGCGGGCGTGGTCTCCTACCCCTTCGACACCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /lab_host="DH10B"
/clone lib-"Normalized and Subtracted bovine embryonic control of the subset (bcaz)"
/note="Vector: pGEMZf11; Tagged oligo-dT was used to identify the origin of the ESTs where possible. (A18)Tcestraembryonic tissue, (A18)TCGGT = 36-day oldfetus; (A18)TGCGA = 64-day old fetus (organs); (A18)TCGGA = 64-day old fetus (body)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tissue type="embryo (day
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone="bcaz0018e.n.09"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        l_type="mRNA"
_xref="taxon:9913"
402
                                             253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 54.6; DB
Pred. No. 0.068;
0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          36 and day 64),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            124; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            812;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          extra-embryonic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  embryonic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (A18) TGCGT
                                                                                              389
                                                                                                                                                                                                                                                                                          269
                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                              209
                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                            329
                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
```

This Page Blank (uspto)

```
Command line parameters:

-MODEL-frame+ p2n.model -DEV=xlh
-O-/cgn2 1/USPTO_Spool h/US10089514/runat_04102005_105744_8033/app_query.fasta_1.1621
-O-/cgn2 1/USPTO_Spool h/US10089514/runat_04102005_105744_8033/app_query.fasta_1.1621
-O-/cgn2 1/USPTO_Spool h/US10089514/runat_04102005_105744_8033/app_query.fasta_1.1621
-DB-GEREND1 -CHR_SCORE-pct -THR_MAX=100 -THR_MIN-0 -ALIGN-15 -MODE=LOCAL
-OUTFMT=pto -NORM-Ext -HEAPSIZE=500 -MINLEN=00 -MAXLEN=2000000000
-USER-US10089514_@CGN_1_1_8782_@runat_04102005_105744_8033_-NCPU=6 -ICPU=3
-NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                               Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                               Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     on:
                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                               Score
   514
514
514
486.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                        GenEmbl:*
1: gb_ba:*
2: gb_htg:*
    100.0
100.0
100.0
94.6
                                                                                                                                                                                                                      6:
7:
8:
9:
10:
11:
12:
13:
                                                                              Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4708233 seqs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-089-514-4
514
1 MTEQNELQRLRAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 October 5, 2005, 05:31:11; Search time 1525.07 Seconds (without alignments) 3272.568 Million cell updates/sec
                                                                                                Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MTEQNELQRLRAELDALDGT.....MCRVEDLVMSRESLTAEDRR
                                                                                                                                                                                                                gb_ph:
gb_pl:
gb_pr:
gb_ro:
gb_sts:
gb_un:
gb_un:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Copyright
                                                                                                                                                                                                                                                                                                                                                gb_ov:*
gb_pat:*
                                                                                                                                                                                                                                                                                                                                                                                 om:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd.
                                                                               DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24227607955 residues
                                თ თ
 BD178314
BD093915
AB116234
AF262220
                                                                               Ħ
                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9416466
BD178314 Transform
BD093915 Transform
AB116234 Streptomy
AF262220 Streptomy
                                                                              Description
                                                                                                                                                                                                    REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                               ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                            RESULT 1
BD178314
LOCUS
                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oο
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                       JOURNAL
   PC
PI
                                                WO 02077244-A/2.
                                                                                                           Streptomyces venezuelae WO 02077244-A/2
```

Streptomycineae; Streptomycetaceae; Streptomyces.

1 (bases 1 to 312)
Yanai,K., Sumida,N., Watanabe,M., Moriya,T. and Murakami,T.
Transformant producing PFI022 substance and process for produci
Transformant producing PFI022 substance and process for produci
the same and novel biosynthetic gene
Patent: WO 02077244-A 2 03-0CT-2002;
MEIJI SEIKA KAISHA LTD, KOJI YANAI, NAOMI SUMIDA, MANABU WATANABE,
TATSUKI MORIYA, TAKESHI MURAKAMI Streptomyces venezuelae Streptomyces venezuelae Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales; BD178314 312 bp DNA linear Transformant producing PF1022 substance and process the same and novel biosynthetic gene.
BD178314 BD178314.1 GI 30015579 03-0CT-2002 03-0CT-2002 22-MAR-2002 WO 2002JP002782 22-MAR-2001 JP 01P 082227 22-MAR-2001 JP 01P MANABU MURAKAMI C12N15/61, C12N1/15, C12P17/14//(C12N1/15, C12R1:645), (C12P17/14, WATANABE, TATSUKI MORIYA, TAKESHI and Murakami, T. process for producing PAT 16-APR-2003 for producing

```
RESULT 2
BD093915
LOCUS
DEFINITION
                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                        REFERENCE
                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-4 (1-103) x BD178314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                  TITLE
                                                                                                                                                          AUTHORS
                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                             101
                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scores:
                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21
 Transformants that produce secondary metabolites modified by a functional group(s) and novel biosynthesis genes
Patent: WO 0123542-A 2 05-APR-2001;
MEIJI SEIKA KAISHA LTD, KOJI YANAI, KAORU OKAKURA, SHOHEI YASUDA,
MANABU WATANABE, KOICHI MIYAMOTO, NAOKI MIDO, TAKESHI MURAKAMI
OS Streptomyces venezuelae
PN WO 0123542-A/2
PD 05-APR-2001
PF 29-SEP-2000 WO 2000JP006783
PR 29-SEP-1900 WO 2000JP006783
PR 29-SEP-1900 WO 2000JP006783
PR 29-SEP-1900 WO 2000JP006783
PR 29-SEP-1900 WO CAKKURA, SHOHEI YASUDA, MANABU WATANABE, KO
                                                                                                                                              BD093915 G1:22639503
BD093915.1 G1:22639503
WO 0123542-A/2.
Streptomyces venezuelae
Streptomyces venezuelae
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
1 (bases 1 to 312)
Yanai,K., Okakura,K., Yasuda,S., Watanabe,M., Miyamoto,K., M:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _
                                                                                                                                                                                                                                                                      Transformants that functional group(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SS
                                                                                                                                                                                                                                                                                                  BD093915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        김포유
                                                                                                                                            and Murakami,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                      AspArgArg 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCCTGGACACGGTGCGGCGCCCCCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                    IleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                     GACCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                      ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and
Key
CDS
29-SEP-2000 WO 2000JP006783
29-SEP-1999 JP 99P 276314
KOJI YANAI, KAORU OKAKURA, SHOHEI YASUDA, MANABU WATANABE, KOICHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Transformant producing PF1022 producing the same and novel biosynthetic gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C12R1:645)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
Location/Qualifiers
Location/Qualifiers
Location/Qualifiers
1. 312
/organism-"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Streptomyces
/mol_type="genomic DNA"
/db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9.73e-47
514.00
100.00%
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                     309
                                                                                                                                                                                                                                                                      312 bp DNA produce secondary metak and novel biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1-312)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps:
                                                                                                                                                        Watanabe, M., Miyamoto, K., Mido, N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   venezuelae"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       substance and process
                                                                                                                                                                                                                                                                                    A linear
metabolites
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       312
103
0
0
                                                                                                                                                                                                                                                                        genes
                                                                                                                                                                                                                                                                                    PAT 27-AUG-2002 modified by a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ဥ
                                                                                                                                                                                                                                                                                                                                                                                                                               100
                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                        JOURNAL
PUBMED
REFERENCE
                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                    LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                             RESULT 3
AB116234
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                    멂
                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
  TITLE
                                                                                                      TITLE
                          AUTHORS
                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                            101
                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                             81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FECER
                                                                              genes
                                                     15184904
```

```
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-089-514-4 (1-103) x BD093915
2 (bases 1 to 5251)
Yanai,K., Sumida,N., (
Murakami,T.
Direct Submission
                                                                                                                                                                                                                                                          Streptomyces venezuelae
Streptomyces venezuelae
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                AB116234 5251 bp DNA linear BCT 03-JUI Streptomyces venezuelae paph, papb, ORFIV genes for 4-amino-4-deoxychorismate synthase, 4-amino-4-deoxyprephenate dehydrogenase, 4-amino-4-deoxychorismate mutase, hypothetical
                                                                                                   Nat. Biotechnol.
                                                                                                                                          Para-position derivatives of engineered with Streptomyces
                                                                                                                                                                                 Murakami,T
                                                                                                                                                                                                                                           Streptomycineae;
                                                                                                                                                                                                                                                                                                                                                               protein, complete cds.
AB116234
                                                                                                                                                                                                    Yanai, K., Sumida, N., Okakura, K., Moriya, T.,
                                                                                                                                                                                                                                                                                                                                             AB116234.1 GI:47846865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GACCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Aspargarg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGGAGAGCCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAlaGlu 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGCTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspVallle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAOKI MIDO,TAKESHI MURAKAMI
C12N15/09,C12N5/10,C12P21/02,C07K11/00//(C12P21/02,C12R1:645)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MIYAMOTO,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Streptomyces
/mol_type="genomic DNA"
/db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.73e-47
514.00
100.00%
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               309
                                                                                                                                                                                                                                           Streptomycetaceae;
                                                                                                   (7),
                                         Okakura, K., Moriya, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers (1). (309).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (1-312)
                                                                                                   848-855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                          fungal anthelmintic cyclodepsipeptides venezuelae antibiotic biosynthetic
                                                                                                   (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         venezuelae"
                                                                                                                                                                                                                                           Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  312
103
0
                                           Watanabe, M.
                                                                                                                                                                                                    Watanabe, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              BCT 03-JUL-2004
                                                                                                                                                                                                        and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sg
                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (01-AUG-2003) Koji Yanai, Meiji Seika Kaisha, Ltd., Microbiological Resources and Technology Laboratories; 788 Kayama, Odawara-shi, Kanagawa 2500852, Japan (E-mail:koji yanai@meiji.co.jp, Tel:81-465-37-5106, Fax:81-465-37-6397)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
/product="4-amino-4-deoxychorismate synthase"
/protein_id="8aD21140.1"
/protein_id="8aD21140.1"
/protein_id="8aD21140.1"
/db xref="GI:4784866"
/translation="MRTLLIDMYDSFTHNLFQYIGEATGQPPVVVPNDADWSRLPVED
/translation="MRTLLIDMYDSFTHNLFQYIGEATGQPPVVVPNDADWSRLPVED
FDAIVVSpGPGSPDRERDFGISRAITDSGLPVLGVCLGFIGGIAQLFGGTVGLAPEDM
HGRVSEVRHTGEDVFRGLPSPFTAVRYHSLAATDLPDELEPLAWSDDGVVMGLRHEEK
PLWGVQFHPESIGSDFGREIMANFRDLALAHHRARRHGADSPYELHVRRVDVLPDAEE
VRRGCLPGEGTTFWLDSSSVLEGASRFSFLGDDRGPLAFYLTYRVADTAGVVSVRGSDGT
TTRTRRPFTNYLEEQLERRRVPVAPELFFEFNLGVYGLGYELKAETTGLAVVAPAEPTP
DAAFLFADRAIALDQGGCCYYLLALDRRGHDDGAAAWLRETAETLTGLAVVAPAEPTP
DAAFLFADRAIALDQGGCCYYLLALDRRGHDDGGAAAWLRETAETLTGLAVVAPAEPTEAT
AMVFGIPEAAAGFGPLARARHKDAYLKGIDECLKEIRNGGESYEICLTNNVTAPTEAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3673. .3964
/gene="pap8"
/codon_start=1
/evidence=experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="papC"
2708. .3676
/gene="papC"
/codon_start=1
                                                                                                                                                                                                                                                            /gene="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="
3673. .
4065. .5243

/gene="ORFIV"
/codon_start=1
/codon_start=1
/evidence=not_experimental
/transl_table=11
/product="hypothetical protein"
/product="hypothetical protein"
/protein_id="BAD21143.1"
/protein_id="BAD21143.1"
/db_xref="GI:47846869"
/translation="WHATTTLAALTGRTAAQQPYWPDPDAVDTVERELAGLPVLTPED
                                                                                                                                                                                                                                                                                                                            4065.
                                                                                                                                                                                                                                                                                                                                                                                /product="4-amino-4-deoxychorismate mutase"
/protein_id="BAD21142.1"
/db.xref="G1:47846868"
/translation="MTEQNELORLRAELDALDGTILDTVRRRIDLGVRIARYKSRHGV
/translation="MTEQNELORLRAELDALDGTILDTVRRRIDLGVRIARYKSRHGV
PMMQPGRVSLVKDRAARYAADHGLDESFLVNLYDVIITEMCRVEDLVMSRESLTAEDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MSGFPRSVVVGGSGAVGGMFAGLLREAGSRTLVVDLVPPPGRPD
ACLVGDVTAPGPELAAALRDADLVLLAVHEDVALKAVAPVTRLMRPGALLADTLSVRT
GMAAELAAHAPGVQHVGLNPMFAPAAGMTGRPVAAVVTRDGPGVTALLRLVEGGGGRP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALPLYSALRAISPVPYGALLEFPELSVLSASPERFLTIGADGGVESKPIKGTRPRGGT AEEDERLRADLAGREKURAENLMIVDLYRNDLNSVCAIGSVHVRRLFEVETYAPVHQL VSTIKGRLRFOTSTAACVRAAFPGGSMTGAPKKRTMEIIDRLEEGPRGVYSGALGWFA LSGAADLSIVIRTIVLADGQAEFGVGGAIVSLSDQEEFTETVVKARAMVTALDGSAV AGAR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DGAGNLDGVFGELRRLMGPELAAGQDHCQELFRTLHRTDDEGEKDR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VRLTAEEHDRTTAATQALTHAVLLSFGLALARLGVDVRALAATAPPPHQVLLALLARV
LGGSPEVYGDIQRSNPRAASARRALAEALRSFAALVGDDPDRADAPGRADAPGHPGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="4-amino-4-deoxyprephenate dehydrogenase"
/protein_id="BAD21141.1"
/db_xref="GI:47846867"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="papA"
/codon_start=1
/evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Streptomyces
/mol_type="genomic DNA"
/db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .3984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "PapA"
                                                                                                                                                                                                                                                                                               'ORFIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       papB"
```

밁 Ś 밁 ঠ 밁 Ś 밁 Ś 밁 Ś 밁 Ś

3973

GACCGGCGG

3981 103

101

AspArgArg

3913

3853

61

81

IleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAlaGlu

100

80

3972

CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC 3912 ArgTyrAlaAlaAspHisGlyLeuAspGluŚerPheLeuValAsnLeuTyrAspValIle

ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG

3793

CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC

ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla

60

3852

41

```
US-10-089-514-4 (1-103) x AB116234
                                                                                                                                                                                                                                                      Percent Similarity:
                                                                                                                                                                                                                                                                                                                 Alignment Scores:
3733
                                                                             3673
                                                                                                                                                                                                                                      Similarity:
                                    21
                                                                                                                  μ
                      LeuLeuAspThrValArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                           ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                               CTCCTGGACACGGTGCGGCGCCGCATCGACC
                                                                                                                                                                                                                                                                                                                                                                                 BHGQWPAGLHLELTPDPVTECVSELDRPPRFTDYRSTCDPRLNPEQSADMVTHFLSLL
"
                                                                                                                                                                                                                                                                                                                                                                                                               ERTRREDGAHVALAQAVHNPVGVKLGPTVSPEDAVALSRSLNPEGVPGRLTFIVRFGA
KEVDELLPPVVRAVARHGAPVVWLCDPMHGNGLKLAGHKTRLIEPMRAETAAFVRTLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AVALGRIAGQYGKPRSSPFETEESGAGRKMPSYCGDAVNEPEFEPAARTPEPRRLLTA
YTCSQIVLDEIRRSWSGRPVLERVYTSHELLLLPYERPLVREGAHGTYSGSAHFGWIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EVVDLMNGMALVARGAALLVQGGDCAERFHEAVPDLVRRKVDNLQGLAAIMRAGSGLP
                                                                                                                                                                                                           1.94e-45
514.00
100.00%
100.00%
100.00%
                                                                                                                                                        (1-5251)
                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                           Indels:
Gaps:
                                                                             3732
  3792
                                      40
```

Query Match: DB:

Best Local

Score: Pred. No ORIGIN

JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE REFERENCE AUTHORS TITLE VERSION KEYWORDS SOURCE RESULT 4 AF262220 LOCUS REFERENCE ACCESSION DEFINITION AUTHORS TITLE JOURNAL ORGANISM JOURNAL Submitted (01-MAY-2000) Biology, Dal St, Halifax, NS B3H 4J1, Canada 3 (Dases 1 to 14159) He,J., Magarvey,N.A. and Vining,L.C. He,J., Magarvey,N., Piraee,M. and Vining,L.C.
The gene cluster for chloramphenicol biosynthesis in Streptomyces
venezuelae ISP5230 includes novel shikimate pathway homologues and
a monomodular non-ribosomal peptide synthetase gene
Microbiology 147 (Pt 10), 2817-2829 (2001) Streptomyces venezuelae
Bacteria; Actinobacteridae; Actinomycetales; 14159 bp DNA linear BCT 09-JAN-200 Streptomyces venezuelae chloramphenicol biosynthetic gene cluster, PAF262220 Submitted (05-JUN-2001) Biology, St, Halifax, NS B3H 4J1, Canada Direct Submission He,J., Magarvey,N.A. and Vining,L.C Direct Submission Streptomycineae; Streptomycetaceae; Streptomyces.
1 (bases 1 to 14159) Streptomyces venezuelae 21461106 AF262220.2 GI:14290414 1577160 (bases 1 to 14159) Dalhousie Dalhousie University, 1355 Oxford University, BCT 09-JAN-2002 1355 Oxford

```
FEATURES
                                                              misc_feature
                                                                                                                                            misc_feature
                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                     misc_feature
                                                                                                       misc_feature
                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence update by submitter
On Jun 5, 2001 this sequence version replaced gi:10716943.
Location/Qualifiers
                                                                                                                                                                                       /note="Region: a
4593. .4610
/note="Region: a
4647. .4706
                                                                                                       4833. .4853
/note="Region:
4893. .4910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="CmlG"
/protein_id="AAGZ1974.1"
/protein_id="AAGZ1974.1"
/db_xref="G1:10716944"
/translation="MTAGSPGFAGRTFLRPRALAVRDIHSFLADLGMDCDVNPCTAFV
/translation="MTAGSPGFAGRTFLRPRALADLVEVAEEDVVVTLDPRPGPVEGGPAELAD
GTVEPGRVEDPAAWREFVARLGLTRALADLVEVAEEDVVVTLDPRPGPVEGGPAELAD
LVTAYHNSR PL&IDEAVWLAYWRHTDGSYLVFVKFSHLIVDLADVVDLLRQITAHLRG
DTPPGRIGSRYRHHARTVEGYTALPAADPAGTTRALGELPVPGRKGIFTISASVEENF
PLREGVTFDELLSAVTGVLLPALGGGLYLQYPYSRWEFATKGGYYVEIKFLVVRPGLP
PLREGVTFDELLSAVTGVLLPALGGGLYLQYPYSRWEFATKGGYYVEIKFLVVRPGLP
SDYTERYFAKTHAQESLGRFTMSDLDAFARAFTSGRMPRVVVSDTTFMRPEEDRWRW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APDRLVIVDALPLTSGGKVDRSALRELLASPAGAPHGGTDGEDAAELRRVLDVVTAVL
GQBIGPETS IFDAGGSSLAMIO1QVKLSDAYGEAVERAFAAMSVDPRAPAFRHLRG
EAVAPAESAVDTLLRRVETERDALRAELPLLRDTRHEPYGAADGDREVLLTGASGF
IGGHVLDRLLAAGRPVLVVSTGDDDGVLTGHATR FGRQADYARVRAISYAELERWVD
RRRGPVVDAVVHCGYQVNHLLPLDSHLSGSVRNTALVVRAAAALGARSFAFLSAASAG
ADFLPLSAATLTAVGDDYSRSKLISESYNNTLAVLGGAVSHYRGLVVGHR PEDRHHL
KDDWFTALLETARRVGAMPRLSGHVPVCDVGTLADTLLGFDANFGTADGASRTPDSR
SAVVVHRTYALDELLHHTGLTEADVLAPAMWEERVRDGGEVBAPLLAAMQAALSGPGW
SSAHREVDHDILGRLLGTPPDTPAGDRPERTGTTSRGPERRRPRADTALTGTEP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABCPAGRRVLVAGEHTAEAVWALAAMRSHAVHTPMNPGLPADRFEEFARVADAALLV
CPEREJLVRGEKAGLEALYAGDVØPTDAEPARAGTTADEPARSVAST ITTSGSTGD
PKLVDVGHGGLLNLCRELRILDI TIPDDOVLHFASLS FDASVSEILGTLYAGARTLVV
PKLVDVGHGGLLNLCRELRRILDI TIPDDOVLHFASLS FDASVSEILGTLYAGARTLVV
VRDQASVLGSVSRHLAAHGCDLAMLS PSVYARLDEAARSRI RKVEFCGEALGEGEYDK
VRDQASWLGSVSRHLAAHGCDLAMLS PSVYARLDEAARSRI RKVEFCGEALGEGEYDK
AARYSRVPNA TGGTEATVCF SLAELTS VFTS IGTPVDGFRAYVAD PDSGDHATAGTGE
LVIVEDGVALGYAGGS PAENEVFGTVDGSPAYATGDVVSLSDDGELTYLGRI DEG IKR
LGHRVNLAHVGSTLSRHLGREVALVRQDATILLVTAADGEATEESLMAR IRDLVPVME
                       /note="Region: 5343. .5375
                                                              /note="Region:
5043. .5075
                                                                                                                                                                                    4647.
                                                                                                                                                                                                                                                                                                                 4350.
                                                                                                                                                                                                                                                                                                                                                                                                   3939
                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="Region: 3708. .3746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /protein id="AAG21975.2"
/db_xref="GI:14327897"
/translation="WEIPDLLTDLFRRHRGRTALRTAGRTWTYEELDRYTSALARRID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="non-ribosomal peptide synthetase; contains
reductase-like domains near C-terminus"
  /note="Region:
                                                                                                                                                                                                                                                                        /note="Region:
4494. .4538
                                                                                                                                                                                                                                                                                                                                                          /note="Region:
4089. .4100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3498. .6404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VPVRSARVFEDLKFLADRSWPGPPLLRMQYKRGFLSPGAAADVLDGLKQRIGASGGTP
                                                                                                                                                                   /note="Region:
                                                                                                                                                                                                                                                                                                                 /note="Region:
4350. .4370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /organism="Streptomyces venezuelae"
/mol_type="genomic_DNA"
/strain="ISP5230"
                                                                                                                                                                                                                                                                                                                                                                                                                         note="Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    product="CmlH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           trans table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          map="adjacent to pabAB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   function="essential for chloramphenicol biosynthesis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          table=11
NADH binding site"
                                           thiolation domain"
                                                                                                                            adenylation
                                                                                                                                                                   adenylation domain A8"
                                                                                                                                                                                                                                                                                                                                     adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                     adenylation domain A2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                adenylation domain A1"
                                                                                    adenylation domain AlO"
                                                                                                                                                                                                                                                   adenylation domain A6"
                                                                                                                                                                                                                                                                                            adenylation
                                                                                                                                                                                                                                                                                                                                                                            adenylation domain A3"
                                                                                                                                                                                                          adenylation
                                                                                                                            domain A9"
                                                                                                                                                                                                          domain A7"
                                                                                                                                                                                                                                                                                                                                       domain A4"
                                                                                                                                                                                                                                                                                              domain A5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
A48325
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                       US-10-089-514-4 (1-103)
                                                                                 Query Match:
                                                                                                                                              Score:
                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-4 (1-103) x AF262220 (1-14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                   Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11142 ATGACCGAGCAGAACGAGCTGCAGGTTGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99 aGluAspArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79
                                                                                                                                                                                                                                                                                                                                                                                             Dutruc-Rosset,G.
STREPTOGRAMINES AND METHOD FOR PREPARING
Patent; WO 9601901-A 3 25-JAN-1996;
RHONE POULENC RORER SA (FR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MetThrGluGlnAsnGluLeuGln----ArgLeuArgAlaGluLeuAspAlaLeuAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 387)
Blanc, V., Thibaut, D., Bamas
Barriere, J., Debussche, L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces pristinaespiralis Bacteria; Actinobacteria; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 3
A48325
                                                                                                                                                                                                                                                                                                                                                          Other
                                                                                                                                                                                                                                                                                                                                                                            Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A48325.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A48325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGAGGACCGGCGG 11454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         lIleIleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCCCGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aAlaArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCCGGGTCAGCCTGGTCAAGGACAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACGCTTCTGGACACGGTGCGGCGCCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            yThrLeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLy
                                                                                                                                                                                                                                                                                                               publication AU 2891295 960209
publication FR 2722210 960112
Location/Qualifiers
1. .387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:2302118
                                                                                                                                                                                                                                               /organism="Streptomyces pristinaespiralis"
/mol_type="unassigned DNA"
/db_xref="taxon:38300"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           387 bp from Patent WO9601901.
                                                                               9.32e-19
256.00
71.08%
61.45%
49.81%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5.2e-42
486.50
98.10%
98.10%
94.65%
                     x A48325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       103
                       (1-387)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bamas-Jacques,N., Blanche,F.,
e,L., Famechon,A., Paris,J. an
                                                                               Conservative: Mismatches: Indels:
                                                          Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                          387
51
8
24
0
                                                                                                                                                                                                                                                                                                                                                                                                                                          SAME BY MUTASYNTHESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Crouzet, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PAT 07-MAR-1997
```

99

11441

79 11321 59 11261 39

19 11201

```
RESULT 6
AR198355
LOCUS
DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                    밁
                                      ঠ
                                                            문
                                                                             á
                                                                                                     밁
                                                                                                                       8
                                                                                                                                              밁
                                                                                                                                                               ঠ
                                                                                                                                                                                      밁
                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                             Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
 RESULT
                                                                                                                                                                                                                              US-10-089-514-4 (1-103) x AR198355 (1-387)
                                                                                                                                                                                                                                                                                 Percent Similarity:
                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                        Х
О.:
                     304
                                                            244
                                                                                                      184
                                                                                                                                              124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                124
                                        87
                                                                                67
                                                                                                                         47
                                                                                                                                                                                       64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47
                                                                                                                                                                 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        64
                                                                                                                                                                                                                                                                                                                                                                                                           Unclassified.

1 (bases 1 to 387)

Blanc, V., Thibaut, D., Bamas-Jacques, N., Bl.
Barriere, J.-C., Debussche, L., Famechon, A.,
Dutruc-Rosset, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AR198355
Sequence 4 from
AR198355
                                                                                                                                                                                                                                                                                                                                                                                        Streptogramins for preparing same by Patent: US 6352839-A 4 05-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AR198355.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unknown
                                                                                                                 WetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                              ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                                                                                                                                                                ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet
                                                                                                                                                                                                 LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                     CTCGAGGAC 312
                                                            GGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCTGCCGC
                                                                               GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg
                                                                                                      ATGCAGCCCCACCGGATCGCCCAGGTCCACGCCAACGCCCCCCCTACGCCGACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet
                                        ValGluAsp 89
                                                                                                                                                                                     CTCGACGCGCTGCGCCCGCCTGGACGCCGGACGCCCCTGCTGGACGCCGTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCGAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCATCGACCCCGCCTTCCTGCGCACCCCTGTACGACACGATCATCACCGAGACCTGCCGC 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        circancececirececicicecciredacececedacecececcireciredacececirecec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                             organism="unknown"
/mol_type="unassigned DNA"
                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                   9.32e-19
256.00
71.08%
61.45%
49.81%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GI:20248204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 patent US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  387 bp
6352839.
                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                   Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA
                                                                                                                                                                                                                                                                                                                                                                                                  mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                               Blanche, F.,
                                                                                                                                                                                                                                                   387
51
8
24
0
                                                                                                                                                                                                                                                                                                                                                                                                                      Paris, J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                      .-M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                <u>.</u>
                                                                               86
                                                                                                                        66
                                                                                                                                                                                      123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46
                                                            303
                                                                                                   243
                                                                                                                                             183
                                                                                                                                                                46
                                                                                                                                                                                                          26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26
                                                REFERENCE
AUTHORS
                                                                                                                                                       RESULT 8
AR198353
                                                                                          KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A48323
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                         멍
FEATURES
                                                                                                                         DEFINITION
ACCESSION
                                                                                                                                            rocus
                                                                                                                                                                                      밁
                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                      2176
                                                                                                                                                                                                                             2116
                                                                                                                                                                                                                                                                        2056
                                                                                                                                                                                                                                                                                                                                                         1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scores:
                                                                                                                                                                                                                                                                                           47
                                                                                                                                                                                                      87 ValGluAsp
                                                                                                                                                                                                                                                  67
                                                                                                                                                                                                                                                                                                                                    27
                                                                                                                        AR198353
Sequence
AR198353
                                                                                           Unknown.
                                                                                                              AR198353.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A48323.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A48323
                                                                                                                                                                                      CTCGAGGAC
                                                                                                                                  1
```

```
US-10-089-514-4 (1-103) x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1996 ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                                               Streptograming for preparing Patent: US 6352839-A 1 05-MAR
                                                                                                                             1 (bases 1 to 2888)
Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, F., Crouzet, J.,
Barriere, J.-C., Debussche, L., Famechon, A., Paris, J.-M. and
Dutruc-Rosset, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREPTOGRAMINES AND METHOD FOR PREPARING PATENT: WO 9601901-A 1 25-JAN-1996; RHONE POULENC RORER SA (FR)
Other publication AU 2891295 960209
Other publication FR 2722210 960112.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomycineae; Streptomycetaceae; Streptomyces.

(bases 1 to 2888)
Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, F., (Barriere, J., Debussche, L., Famechon, A., Paris, J. and Dutruc-Rosset, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1 from Patent A48323
                                                                                                                                                                                                                                                                                              Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCTGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGCAGCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCGCCGCCGCCGCCGACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetGlnProGlyArgValSerLeuValLysåspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   creacececrececered akececeda con construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Streptomyces pristinaespiralis"
/mol_type="unassigned DNA"
/db_xref="taxon:38300" '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:2302116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7.85e-18
256.00
71.08%
61.45%
49.81%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:20248202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A48323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (1-2888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2888 bp
WO9601901.
                                           oaring same k
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2888 bp
US 6352839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                  λÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2888
51
8
24
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BY MUTASYNTHESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Crouzet, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PAT 20-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             07-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26
```

```
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 9
SPU60417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       핝
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-4 (1-103) x AR198353 (1-2888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                                                                             JOURNAL MEDLINE
                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                     gene
     Sg
                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2176 CTCGÁGGÁC 2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1996 ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1936 CTCGACGCGCGCGCCCCGCCTGGACGCCGGGACGCCGCCCTGCTGGACGCCGTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  87 ValGluAsp 89
                                                                                                                                                                                                                                                                                             Mol. Micz
97197164
                                                                                                                                                                                                                                                                                                                                                                                   l (bases 1 to 4740)
Blanc, V., Gil, P., Bamas-Jacques, N., Lorenzon, S., Zagorec, M.,
Schleuniger, J., Bisch, D., Blanche, F., Debussche, L., Crouzet, J.
                                                                                                                                                                   Submitted (11-JUN-1996) Recherche Submitted (11-JUN-1996) Recherche
                                                                                                                                                                                                                  2 (bases 1 to 4740)
Blanc, V., Gil, P., Bamas-Jacques, N.,
Blsch, D., Blanche, F., Debussche, L.,
                                                                                                                                                                                                                                                                                                            Identification and analysis of genes from Streptomyces pristinaespiralis encoding enzymes involved in the biosynthesis the 4-dimethylamino-L-phenylalamine precursor of pristinamycin I Mol. Microbiol. 23 (2), 191-202 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Streptomyces pristinaespiralis
Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomyces pristinaespiralis 4-dimethylamino-L-phenylalanine precursor biosynthesis (papA, papC, papB, papM) genes, completo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7
                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomycineae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  060417.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SPU60417
                                                                                                                                                                                                                                                                              9044253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCTGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGCAGCCCACCGGATCGCCAGGTCCACGCCAACGCCGCCGCTACGCCGCCGACCAC
                                                                                                                                                                 13 quai Jules Guesde,
 /gene="papA"
68. .2227
                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:1575335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="unknown"
/mol_type="unassigned/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.85e-18
256.00
71.08%
61.45%
49.81%
                                       .2227
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4740 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA"
                                                                                                                                                           Pharmaceutique, Rhone-Poulenc
. 14, Vitry sur Seine cedex 94403.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
                                                                                                                                                                                                                     Lorenzon, S., Crouzet, J. a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2888
51
8
24
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     papM) genes, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                     ., Schleuniger, J., and Thibaut, D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BCT 07-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46
                                                                                                                                                                                                                                                                                                                                                 of
E
Query Match:
               Best Local Similarity:
                                 Percent Similarity:
                                                        score:
                                                                         Pred. No.:
                                                                                          Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                          Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="papB"
3413. .3802
/gene="papB"
/function="mutase"
                                                                                                                                                           /product="papm"
/product="papm"
/product="papm"
/protein_id="AAC44869.1"
/db_xref="GI:1575339"
/translation="mfaaaptlaQALDEATGQLTGAGITADAARADTRLLAAHACQVA
/translation="mfaaaptlaQALDEATGQLTGAGITADAARADTRLLAAHACQVA
/translation="mfaaaptlaQALDEATGQLTGAGITADAARAULGIELSQAAARA
ITADAIARLEALVRRGTTAPLVVDLCAGPGTMAVTLARHYPAARVLGIELSQAAARA
RRNARGTGARIYQGDARADAFPELSGTVDLVVTMPPYIPIGLRTSAPEVLEHDPPLALW
AGEEGLGMIRAMERTAARLLAPGGVLLLEHGSYQLASVPALFRATGRWSHASSRPTCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="AAC44867.1"
/db_xref="G:1157337"
/db_xref="G:1157337"
/db_xref="G:1157337"
/db_xref="G:1157337"
/db_xref="G:1157337"
/db_xref="G:1157337"
/db_xref="G:100="MRGSVFGRCVVVGGAGAVGRMFSHWLVRSGVAVTWLDVAGAGA
/branelation="MRGSVFGRCVVVTLAVPEPVAMEAVEVLAGWRAGAVLADTL
SDURVVAGDVRRFGGEAVAALAADVVVLAVPEPVAAVVVTUDGPGVRALVELVAGW
SVKSRIAGRIREAPFGLQAVGALVAFAVLAFGLGGELSVDVGALRDSAPPPHLAMIAL
GARVVEMPARRHDELTNAAQQAATHAAVLAFGLGGLGELSVDVGALRDSAPPPHLAMIAL
LARIAGGTPEYYFDIQAANPGAPAARQALGRGLVRLGQAVERGDEETFAALFAELRGV
                                                                                                                                                                                                                                                                                                                                           /gene="papM"
3799. .4677
/gene="papM"
/function="N-methylase"
                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MTPPAIPAAPPATGPAAATDPLDALRARLDAADAALLDAVRTRL
DICLRIGEYKRLHQVPMMQPHRIAQVHANAARYAADHGIDPAFLRTLYDTIITETCRL
EDEWIASGGAPVPTPVHASASARGAVS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEVREMILKAQTTLAALRQAHAGATASDREILLAGSLR"
complement (2486. .3376)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3413. .3802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (2486. .3376)
                                                                                                                                                DGCLTAVRNHTCAPPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="Pap8"
/protein_id="AAC44868.1"
/db_xref="GI:1575338"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GEHGAELERLCARMFTALH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 product="PapC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function="dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="papC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="papA"
/function="p-aminobenzoate synthase"
                                                                                                                                                                                                                                                                                                            codon_start=1/transl_table=11
1.33e-17
256.00
71.08%
61.45%
49.81%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          table=11
                                 Length:
Matches:
Conservative:
                  Mismatches:
```

```
RESULT 10
BX571871/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-4 (1-103) x SPU60417 (1-4740)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                 Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7
                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (23-APR-2003) L. Frangeul, Institut Pasteur, Genrue du Docteur Roux, 75724 Paris Cedex 15, FRANCE. B-mail: lfrangeu@pasteur.fr fkunst@pasteur.fr Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Duchaud, E., Rusniok, C., Frangeul, L., Buchrieser, C., Taouri Bocs, S., Boursaux-Eude, C., Chandler, M., Dassa, E., Derose, I Derzelle, S., Freyssinet, G., Gaudriault, S., Givaudan, A., Gl Medigue, C., Lanois, A., Powell, K., Siguier, P., Wingate, V., Zouine, M., Boemare, N., Danchin, A. and Kunst, F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           segment 13/17.
BX571871 BX470251
BX571871.1 GI:36786846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Duchaud, E., Frangeul, L., Rusniok, C. and Kunst, F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Photorhabdus luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Complete genome sequence of the entomapathogenic bacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Photorhabdus luminescens subsp. laumondii TTO1
Photorhabdus luminescens subsp. laumondii TTO1
Bacteria; Proteobacteria; Gammaproteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complete genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Photorhabdus luminescens subsp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BX571871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Enterobacteriaceae; Photorhabdus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCGAGGAC 3724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValGluAsp 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG 3595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCTGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGCAGCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCGCCGCTACGCCGCCGACCAC 3655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCGACGCGCTGCGCCCCGCGTGGACGCCGCGGACGCCCCTGCTGGACGCCGTCCGC 3535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biotechnol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submission
                 /protein_id="CAE15912.1"
/db_xref="G1:36786847"
/db_xref="G1:36786847"
/trānslation="MSFNAFYQOSIDDPNAFWAEQAQRIFWQHPFEQVLDYSNPPFAR
WFCGGKTNLCYNALDRWILESQPDAKALITISTETNSEKVFTFKELHQEVNRAAAMMLS
LGVKKGDRVLVYMPMIAEALFVLLACARIGAVHSVVFGGFASQSLATRLDNAEPVLVV
                                                                                                                      /product="Propionate--CoA ligase (Propionyl-CoA
synthetase)"
                                                                                                                                                                                                                                         /locus_tag="plu3539"
complement(1142. .3028)
SADGGARGGKI I PYKPLLDEA I ELANHKPRHVLMVNRGLAEMVWVPGRD I DFATLRQF
                                                                                                                                                                                                                                                                                                           complement (1142. .3038)
                                                                                                                                                                                                                                                                                                                                                                                                                   1. .349944
                                                                                                                                                                                                                         gene="prpE"
                                                                                                                                                                                                                                                                                                                                                /mol_type="genomic DNA"
                                                                                                                                                                 transl
                                                                                                                                                                                     codon
                                                                                                                                                                                                        locus
                                                                                                                                                                                                                                                                                                                                                                                         organism="Photorhabdus luminescens subsp. laumondii TTO1"
                                                                                                                                                                                                                                                                                                                               xref="taxon:243265"
                                                                                                                                                                                                        _tag="plu3539"
                                                                                                                                                                 table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             349944 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (2003) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA linear BCT 26-SEP-2003 laumondii TTO1 complete genome;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Taourit, S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genopole,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Glaser, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26
                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                           RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RBS
```

/gene="prpE" /locus_tag="plu3539" complement(3101. .4565) FFSTSDIGWIVGHSYIAYAPLIAGMATIMYEGLPIRPDAGIWKIVEKYQVTRMFSAP TAIRVLKKYPIECIGKYDISSLKTLYLAGGELDEHTARWIAEAINVPVIDNYWQTETG WPIMAIARTIDDRPSRFGSTGFPMYGFHVKLINELTGEACGDNEKGMLVIEGPLPPGC IQTIYGDDTRPINTYWRHEBHAVYSTFDWGIRDSDGYYFILGRSDDVLNVAGHRLGTR EIEECIASHEDVAEVAVIGIKDAIKGQVAVAFAVLKDGKEIQNAEHFAALEKVLMGLV /locus_tag="plu3540" complement(3101. .4552) /gene="prpD" complement (3033. .3038) NKQIGSVGRPARIYFVSQLPKTRSGKMLRRTMQAICEGREPGDLSLIENPASLDVIRE Y FDADI PVTWLESNETSCVL YTSGTTGTP KGVQRDVGGY AVALATSMDI I FGGKAGEV codon_ gene="prpD" locus_tag="plu3540" start= _table=11

/translation="MSTSVASNHPEYDQVIADIVDYVMEYAITSSVAYETAYYCFLDT IGCGLEALEX PACKKLLGPI VPGTVVPMGVRVPGTOPQLDPVQARVAIGTMLEMLDFN DTWLAAEWGHPSDNLGGILAVADWLSRNAVAGKKPLTI KDVLTGMVKAHEIQGCLAL ENAFNKVGLDHVVLVKVASTAVVAEWLGLAREBILSAVSLAWVDGQSLRTYRHAPNTG SRKSWAAGDATSRAVRLALMAQKGEMGYPSVLTAKTWGFYDVLFNGQPFKFQRAYGAY VMENVLFKLAFPAEFHAQTAVBAAISHQQLKDAGKTINDITKIIRRHEACIRIIDK QSPLNNPADRDHCIQYMVAIPLIFGRLTAANYEDSVAADFRIDALREKYCIEDLDFT RDYHDPEKRSIANALTVTFTOGSQLLDEVKVERPIGHARRKEGIPLLKKFRTNLARQ FPETQQRRILSVSLLCSLLESMPVNEYLDLYVI" complement (4560. .4565) /product="2-methylcitrate dehydratase" /protein_id="CAE15913.1" /db_xref="GI:35786848"

/locus_tag="plu3541" complement(4607. .5773) complement (4607. .5787) codon_start=:/transl_table 'gene="prpD" gene="prpC" 'locus_tag="plu3540" gene="prpC" locus_tag="plu3541" table=11

/product="2-methylcitrate synthase (Methylcitrate synthase) (Citrate synthase) (Citrate synthase 2)"
/protein_id="Camis914_1"
/db_xref="GI:36786849"
/db_xref="GI:36786849"
/translation="MSEQNIMTELTIFKPKKSVALSGVSAGNTALCTVGKTGNDLHYR
/translation="MSEQNIMTELTIFKPKKSVALSGVSAGNTALCTVGKTGNDLHYR
/STILDLATQCEFEEWAYLLVHEKLESRAELAYKALKITALRGLEGGSVKAALETLPAA
AHPMDVMRTGVSVLGCTLPEKDDHNLAGARDIBARLASILLYMYHYSHNGRRIE
VETDDVSIGGHFLHLLHGKKTCEŚWEKAMHTSLILYABHEFNASTFTSRVIACTGTDI
YSAIIGAIGALRGPKIGGANEVSPEIQQRYENPDEAERDILARLARREVIIGFGHPVY GVPTAMFTPLFVIARTAGWAAHI 1EQRIDNKIIRPSADYTGPENRVFTPIGKRG" TISDPRHKVIKDVALQLSKEAGT¶KMFNIADRLEAVMWANKKMFPNLDWFSAVSYHM! complement (5782. .5787)

/locus_tag="plu3541" complement(5834. .6736) /locus_tag="plu3542" complement(5834. .6724) gene="prpC" transl gene="prpB" locus_tag="plu3542" _start=1 table=11

/product "Probable methylisocitrate lyase (2-methylisocitrate lyase)" (2-methylisocitrate lyase)" (2-methylisocitrate lyase)" (brotein id="CAB15915.1" (brotein id="CAB15915.1" (brotein id="CAB15915.1" (brotein id="CAB15915.1" (brotein id="CAB15915.1" (brotein id="WT158A6150" (brotein id="WT158A6

ALAVEGFAAALDRAKAYI EAGADMLFPEAI TELHMYKAFASTTGVPVLANI TEFGATP lftteelksadvsialyplsaframnkaaeqvyitlrregtqksvismmqtrnelyes

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(8738...9709)
/locus tag="plu3544"
complement(8738...9709)
/locus tag="plu3544"
/function="Unknown"
                                                                                                                                                                                                            /codon_start=1
/trans1_table=11
/protein_id="CABL5918.1"
/protein_id="CABL5918.1"
/db_xref="GI:36786853"
/translation="MKNTSKEHPAALSSLINASSGEKDTLAFVIFPGMTPLDMIGPAT
VLGVGGWLNEEYVMRDLLPVRTELAHISFSPSTTFEDLNKVDILCVPGTGNPYALLAE
LDMLDWIHKVGSKASWVTSVCTGSILLGAAGLLKGYQAATHWSMIDDLNKFDAIPVNK
RVVIDBNRVTGGGVTAGIDFGLTLLABIKGESYAAVQLAMQYSPEPBFNSGMPBFFAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="prpR"
/locus_tag="p
7057. .8724
                                                                                            /locus_tag="plu3546"
complement(11533..12540)
/gene="ISPlu15A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="unnamed protein product; Similar to probable transcription regulator"
/codon_start=1
/transI_table=11
/protein_id="CAE15917.1"
/protein_id="CAE15917.1"
/db_xref="G1:36786852"
/translation="MMIKTLYFLIFENUNLLDLSGPLQVFTTANELAEKFGHRRPYAI
KTVACDPGQVMTQAGITVQAEPLPKILDSPADTLIVAGGIGVESAANHPPLRNWLKGHA
SLARRZVSVCSGAFILAACGLLDGRRVTHWSSCAELARRYSKLRVECDPIFTQDGPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HTLNDIRGDSAVMEHVRNTIMLYARSPÄTVLIQGESGTGKELVÄQAIHHEYALRYGQV
AGKHQRPFVANNCGALAESLLEAELFGYEEGAFTGSRRGGRAGLFEVAHRGTLFLDEI
GEMPLPLQTRLLRVLEEKSVVRVGGHRPIAVDFXICATHCDLDTWYQDGRRFTLFLDE
RLSVLRINIPALREKGHDIGILALEYLRRAFAALNLPYSQSRVQELATCQEALQAYHW
PGNVRELRNLMERLTLYLSAHPEHILTPELILALSPERQSILKQAEQSMKSSPSSIQQ
SSLVVPLSVHETTKRFSGNHHATAEYLGISRTTLWRRLKKEIARERE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IQLGFENAVQHIRQRLTTECCDAVLCAGSNGAYLKSRLSVPVIIAKASGFDFMQALAR
ARQISSRIGVITYQNTLPALEEFQQRFNLRIEQRSYVTEEDARAQVNALKAIGIKVIV
GAGLITDLAYEAELVGVFVYSADSIRQAFHDALDIARMTTLSQASISAYFTENNLRTR
                                                                                                                                                         complement (11533. .12540)
/gene="ISPlu15A"
                                                                                                                                                                                                 KEITHATLQAIFSNVEKQTPDYKEILIKSAKRISDIY"
                                                                                                                                                                                                                                                                                                                                                                                    /note="unnamed protein product; Some similarities with
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /locus_tag="plu3545"
10017. .10784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /locus_tag="plu3545"
10003. .10008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WTSAGVTAGIDLALALLEEDFGHKLALDVARDLVMFLKRPGGQEQFSAPLALQSSTSK
FADLHAWYTNNLAGDLSVATLATRANWSERSFVRHYSQHAGITFAKAVERFRLEAARH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7047
/product="Transposase, ISNCY family"
                  /transl_table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10003. .10784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LLVESTLSLKCIASRCGFGCEDTLRRSFFRAFSSTPQDYRKHFKTTF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       translation="MAETPSAERDNRDKPVIWTVSVSRLFDLFRDITPEFDHQANITF/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /transī_table=11
/product="Propionate catabolism operon regulatory protein"
/protein_id="CAE15916.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="prpR"
/locus_tag="plu3543"
7047. .7052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (6731. .6736)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INYYDFEQKLDLLFSQKKSQ"
                                                        /locus_tag="plu3546"
/function="Transposase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="GI:36786851"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="prpR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="prpB"
/locus_tag="
                                                                                                                                                                                                                                                                                                                                                                                                                              function="Unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon
                                                                                                                                                                                                                                                                                                                                                                                                                                               locus_tag="plu3545"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           locus_tag="plu3543"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _tag="plu3542"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tag="plu3543"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8724
                  _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 11
AX770909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B:
Query Match:
                                   Percent Similarity:
                                                          score:
                                                                                              Alignment
                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                             Мо.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Match:
                                                                                              Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
```

```
/protein_id="CAB15919.1"

/db_xref="GI:36786854"

/translation="WKRKN"PTPHDAIFKKFLSHIDTARDFLEIHLPATLRAVCDLDT

/translation="WKRKN"PTPHDAIFKKFLSHIDTARDFLEIHLPATLRAVCDLDT

LRLESGSFIEDNLRVHYSDILYSLKTTQGESYVYCVIEHQSSPDKMMAFRLMRYSISA

MQMHLEQGHKKLPLVIPVLFYHGKLRPYPMSTMWFDCFDASALAEEIYSSAFPLVIDVT

VIPDDEILTHKRVALLEIVQKHIRQRDMAELQQELTMLFAYDYYTYELLKSMLNYILL

VGDTADPEGFIRQLAEQFPKYEEVLMTIAQKLQHKGHQEGLKEGLQKCQDAREEGLQE
```

```
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-4 (1-103)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32476 ATTGAAGAGACTTGCCGTCGAGAAGAA 32450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32536 GATAAATCAACCGÁTTTTGGGTTÁCGGCCTGAATATACTGAATCAATATTTCAACTGGTT 32477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      32596 GGGCAGGATATTCCGATGATGCAGCCACAACGTATTACCTCGTTATTGAATATGTTGCGG 32537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         32656 ATTTTGGCACTGCTTTCTGAACGTATGAAAGTTTGTATGAAAATCGCTGAGGTAAAAGCG 32597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            32716 ATAAATAAACAGGAAATATTACAACCTTACAGGGAATCTTTGGATGTTAATATATGCAG 32657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41 ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
AX770909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MetThrGluGlpAsnGluLeuGlpArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                               Patent: WO 02094867-A 40 28-NOV-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence of the Photorhabdus lumihescens
                                                                                                                                                                                                                                                                                                                                                                                                                                             Duchaud, E., Taourit, S., Glaser, P., Frangeul, L., Kunst, F., Danchin, A. and Buchrieser, C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Photorhabdus luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Photorhabdus
                                                                                                                                                                                                                                                                                                                                        SCIENTIFIQUE (CNRS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Enterobacteriaceae; Photorhabdus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AX770909.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AX770909
                                                                                                                                                                                                                                                                                                                                                            INSTITUT PASTEUR (FR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleThrGluMetCysArgValGluAsp 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle 80
                                                                                                                                                                  /note="sequence length too big . Splitted into 2 sequences.~seq 00040: 1 to 349980~seq 10790: 300001 649980~seq 10791: 600001 to 696798"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40 from
                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                               db_xref="taxon:29488"
                                                                                                                                                                                                                                                     organism="Photorhabdus"
|mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                 . .349980
0.632
120.00
55.06%
28.09%
23.35%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:32438073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.632
120.00
55.06%
28.09%
23.35%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x BX571871 (1-349944)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        349980 bp
Patent WO02094867
                                                                                                                                                                                                                                                                                                                                          (FR)
                                                                                                                                                                                                                                                                                                                                                              CENTRE NATIONAL
                                                             Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps:
                   Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches:
Conservative:
                                                                                                                                                                                                                                                                           luminescens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA
                                                                                                                                                                                                                                                                                                                                                              멆
                                                                                                                                                                                                                                                                                                                                                                                                                         strain TT01 genome and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   349944
25
24
40
0
                                                                                                                                                                                                                                                                                                                                                              LA RECHERCHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PAT 02-JUL-2003
                                                                                                                                                                                          ö
```

```
JOURNAL
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 12
AE017175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 踞
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-4 (1-103) x AX770909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                           SdS
                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               113824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            113704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          113644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            113764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          113584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300454
Porphyromonas gingivalis W83
AE017175 AE015924
AE017175.1 GI:34396011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                L
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nelson,K., Fleishmann,R., DeBoy,R., Paulsen,I., Fouts,D., Eisen,J., Daugherty,S., Dodson,R., Durkin,A., Gwinn,M., Haft,D., Kolonay,J., Nelson,W., White,O., Mason,T., Tallon,L., Gray,J., Granger,D., Tettelin,H., Dong,H., Galvin,J., Duncan,M., Dewhirst,F. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Complete Genome Sequence of the Oral Pathogenic Bacterium Porphyromonas gingivalis Strain W83
J. Bacteriol. 185 (18), 5591-5601 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nelson,K., Fleishmann,R., DeBoy,R., Paulsen,I., Fouts,D., Eisen,J. Daugherty,S., Dodson,R., Durkin,A., Gwinn,M., Haft,D., Kolonay,J., Nelson,W., White,O., Mason,T., Tallon,L., Gray,J., Granger,D., Tettelin,H., Dong,H., Galvin,J., Duncan,M., Dewhirst,F. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Porphyromonas gingivalis W83
Porphyromonas gingivalis W83
Bacteria; Bacteroidetes; Bacteroides (class); Bacteroidales;
                                                                                                                                                                                                                                                                                                                                                                                              Medical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Porphyromonadaceae; Porphyromonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATAAATAAAĆAĠGAAATATTAĆAACCTTACAĠGGAATCTŤŤGGAŤGTTATTAATATGCAG 113643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTTTGGCACTGCTTTCTGAACGTATGAAAGTTTGTATGAAAATCGCTGAGGTAAAAGCG 113703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetThrGluGlpAsnGluLeuGlpArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                     ibmitted (29-OCT-2002) The Institute for
edical Center Dr., Rockville, MD 20850, U
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATAAATCAACCGATTTTGGGTTACGGCCTGAATATACTGAATCAATATTTCAACTGGTT 113823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGCAGGATATTCCGATGATGCAGCCACAACGTATTACCTCGTTATTGAATATGTTGCGG 113763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTGAAGAGACTTGCCGTCGAGAAGAA 113850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IleThrGluMetCysArgValGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 300454)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to 300454)
                                                                                                                                                                                                                                                                                                                                                                                                                                    Submission
            /product="conserved domain protein"
/product="conserved domain protein"
/protein id="AAQ65996.1"
/db_xref="GI:34396932"
/translation="mTDYAHKWSLDLRWIDLERYSDHIDNKASHCAKWLNDYYQKFDA
/translation="mTDYAHKWSLDLRWIDLERYSDHIPSHEVRFIQECKNEKAKKAWVD
QKGTQFVFSDLGTYKPGGEFNVYSEIKRKLVEDYHLDSHEVRFIQECKNEKAKKAWVD
AMNRGDIRIIFGSTSMLGTGYNAQQRAVAIHHLDTWRFPSDLEGRUGRAVRGKGMMIAK
                                                                                                                                                                                                                                                                                       /organism="Porphyromonas gingivalis W83"
/mol_type="genomic DNA"
/strain="W83"
                                                                                                                                                /codon_start=1
/transl_table=
                                                                                                                                                                                                                              locus
                                                                                                                                                                                                                                                   /db_xref="taxon:242619"
|77. .1757
                                                                                                                                                                                  locus_tag="PG0847"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               σ
                                                                                                                                                                                                         ns_tag="PG0847"
.1757
                                                                                                                                                table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-349980)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 bp DN
3 section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA
on 4 of 8
                                                                                                                                                                                                                                                                                                                                                                                          or Genomic
USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
8 of the
                                                                                                                                                                                                                                                                                                                                                                                                            Research,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCT 02-SEP-2003 complete genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eisen, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                     Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sg
                                                          repeat_region
/locus_tag="PG0853"
                       insertion_seq="IS1.9"
807. .7292
```

/product="conserved hypothetical protein"
/product="conserved hypothetical protein"
/protein id="AAQ66000.1"
/db_xref="GI:34396936"
/db_xref="GI:34396936"
/translation="MEHLEKYKVLNLSLPLSGAKSEKDISDFFALGNGANDLKDLLAK
MFSDMYSQTMMMLRSCEIDYDNPPDASKSVVAVNGVPLGTQDNLFCITGGEGTGKSNY
ISAILSGTLREERLSAROTLGLEITANPNGLAVLHYDTEQSBACHKNLGRTLRRANDESE
TAVPBEYHSLYLASLSRKDRLKLIRESMDLFHHKHGGIHMIDGIADLIRSANDESE
SIAIVDEMYRLAGIYNTCIICVLHFVENGIKLRGHIGSELQRKAAGILSIETDDNPEY
SVVKVIKVRDGSPLDVPMMLFGWDKEADMHVYRGEKSKEDKEKRKTDELIAYVKEAFR complement (3643. .3951)
/locus_tag="PG0850"
/note="identified by materials." /locus_tag="PG0851" complement (3939. .5105). /locus_tag="PG0851" /note="identified by Glimmer2; putative" /protein id="AAQ65999.1" /protein id="AA365935" /db xref="GI:34396935" /translation="MPYLDFNPDDVWQKHLFERLMCVEEKLDQMLVLQEQVISTSVRP PLKPEYLDIIDVSKILKVEQKTIYNWVWAGRIPYLKANGRLLFLREEIDEMLRKRDEW /translation="Mickhihihiktttpakrtssmtsksiknkiasfemgkvfrled Lglfrteqnaavvalgrlvqegeikrlspgtyykpkqtrfgvvgpsmeerfrdllydn Dtpigyltgfyafnllglttqqsätlevgtnfpkrngkrgiyairfvlqknpisrdni Emlrlldclkwikkipdtttdksyillkkkvneyakeeqkqlvelalkyspltrallg complement(2845. .3615)
/locus_tag="PG0849"
/note="identified by Glimmer2; putative" KRM1BPFVTTYLKKRNMEDVVTQYHLEPFELNVLSLRQTLCEKTVSL1RFS1SEDPLA SLSSK1RHFYDLNALLAIKELEEYVCSEEFVNDVETLVKHDQEAFDEPAGMKDLKDLN QSPLVMDFDKLMDSLAPKYEENLGAIAYREIPSSETIKASFLKILKSLRVIDLTKE" FSEYVAVLSGNTNILLEKAKLDKKI ATLESERKNFLRERDTATGKLAEI DSSVSFHSDK IKEAKEDLAG FEKRYERDAEGI, PI INKLITI KGYEGSTO I KVI AARLQE I EEKARTKGEY IKI GEI YGFSI MVKTENSKEL FDGSSNRFFYKGQESI YYTYNNGKLASDFKLACON INALER I PKVI ESHEKEKEKVSANKEVYMT I AGGSWKKEDELRS LKGQAAELDRK I AL NKITLSYQELCEVLMREMEIKDRTAKKYIAYMKEQRILAQDSNGNYQKGELCHT" complement (3939. complement (3643 SMLTDELLATTLYQTLSPLTRFRIGLSPNLVSNQWNIQ" complement (2845. .3615) /locus_tag="PG0849" /translation="MEHTIKEYLHLDPESFMDLVQASSEDLKIPVQLIEKDYYISEIL RALSKSSYSQQIVFKGGTSLSKAYLLIDRFSEDVDFAVISENMSGNQVKMLLSNLMKE complement(1862. .2860) /locus_tag="PG0848" /locus_tag="PG0848" QPRSNEPGGYIETQMEIG" TLAPPEEEKETEEEKQVQEHGISGKEPIQETRYSAEPISHKQAEKTPPSEQVTPPPTR /codon_start=1 /transl_table=11 /codon_start=1 /transI_table=11 /product="DNA binding TIGR01764" /locus_tag="PG0850" /product="hypothetical protein" /protein_id="AAQ65998.1" /db_xref="GI:3439634" /codon_start=1 /transl_table=11 VTASLTEDKSFSDISKGSKYRKQAFSYDAQVGLDVSVNPIPSRIVVEISAFANPFPYE /codon_start=1 /transT_table=11 /product="hypothetical protein" /protein_id="AAQ65997.1" /db_xref="GI:34396933" note="identified by Glimmer2; putative" .5105) .3951) by match protein, ç TIGR excisionase protein family

CBS

```
/locus_tag="PG0858"
/note="similar to GB:D90318, GB:D90319, GB:D90320,
/BB:D90321, GB:D90322, GB:D90323, GB:D90324, GB:D903
GB:D90326, GB:D90327, GB:D90328, GB:D90329, GB:D906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (8333. .8428)
/locus_tag="PG0855"
/note="identified by Glimmer2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MYPIKIIYVYKAMLDKVIDKAGGVLTEAYGDVVKPVLKPIGEVL
GFLPRSIKCLLQGWEKWIINGEESIRLTSEAIRKKIEATPAERLTEPEPYVVVPAIQQ
LGYSHSSEELRELYANLIVSSMDVEKKGLVHPAFVDILKKLTPDEAKIIQYFKGRDFI
EYLDLRAYIKBEEGGGFRTIADHKTLLSDEVNFFMPDMELAYLQNLVCLGILKDCEGT
                                                                                                                                                TLRLDKVNKVFELFGSECGPVPMKREGDDV"
                                                                                                                                                                                                                                                                                                                                                                                                         /translation="mdenlrqlaesiltdltqdapiantmlkakvfaskkndkdllswiehelngyeenlpkyrlldagvkvdihrgfqdylgnyrdgdryrdekvrerlhlpih

GSISEVEELSTKSGEGTIHIDIPIENYHHMRHCINGDIQRAYGPATVASVKQIMVKI

KSLLIDYFLKIDKGESLSFLSLIKKETPTMQIIAGIVNTGSGNVTANGATISGANIS

INKDNLPELQRILSCIEEIMKSLNSDDYKEISEELKTEIEKDSPSRNIIKRIQAING

IASGIVSGVIANQVSPLVTSAIALL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transT_table=11
/product="hypothetical protein"
/protein id="AAQ66004.1"
/db_xref="GI:34396940"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8613.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(8333. .8
/locus_tag="PG0855"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FTVIEDNYKLIENKLGLESLRNQYVPEQFSSIRSEKSFYQVTDFGRNFINTVTE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MIKIKAIERKAGFGKTSKTLWYPAIHLHSDVKFEEFIELVSDET
TVSSADIKAVFDRAAKVLIRLLQDGKSIDCGDMGTYRPSITAKAGSGVDSADKVTVEL
VDKAKVIYTPRMKVKTALKGVRMERAERVLDVPYASSIKPNENNSGGSSSSDNNGHAG
                                                                                   /locus_tag="PG0858"
9963. .10298
                                                                                                                                                                                 /codon start=1
/transT table=11
/product="transcriptional regulator,
/protein id="AAQ66005.1"
/db_xref="GI:34396941"
                                                                                                                                                                                                                                                                                          PF01381"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8613.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="hypothetical protein"
/protein_id="AAQ66003.1"
/db_xref="GI:34396939"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="hypothetical protein"
/protein_id="AAQ66002.1"
/db_xref="GI:34396938"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /locus_tag="PG0854"
/note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /locus_tag="PG0854"
7293. .8111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="DNA-binding protein, histone-like family"
/protein_id="AAQ66001.1"
/db_xref="GI:34396937"
                                                                                                                                                                                                                                                                                                             /locus_tag="PG0857"
/note="identified b
                                                                                                                                                                                                                                                                                                                                                  /locus_tag="PG0857"
9742. .9966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /locus_tag="PG0856"
/note="identified by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /locus_tag="PG0856"
3613. .9518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       translation="MIFSLHHFALICSEMGTFAVSKRAKYKWEVL"/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                   translation="MQARTIIAQYVKEMRKKYKLTQVDLSEKAGVGLRFVRELEQGKT/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      trans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /locus_tag="PG0853"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .8111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .8428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γď
                                                                                                                                                                                                                                                                                                             by match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Glimmer2;
                                                                                                                                                                                                                                                                                                             ťo
                                                                                                                                                                                                                                                                                                             PFAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  putative"
                                                                                                                                                                                                                                                                                                           protein family HMM
    GB:D90325,
GB:D90330,
                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local S.
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        U67480/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-089-514-4 (1-103)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment
                                                                                                                                                              JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity:
                                                                                                                                                                   8688087
```

CDS

gene

gene

gene

CDS

gene

```
41206 GAATCTGTCCGTCTGCAGACCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41026 GAATTGCTAGCTCGGCGGATGCAAGTGGCATACGAGATAGGTTTGTTCAAAAAAAGAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41146 GCAGCCCTCTTAGGTTTGGACGAAACATTTATATCGGAGCTGTTCAGCCGTATTCATGAG 41205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41086 AATCTGGCTGTGGTTCÁGAATCTCĆGCTACGAACAACTACAGCGCAACCGTGĆĆĆĠTACT 41145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83 GluMetCysArgValGluAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43 GlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyr 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     23 AspThrValArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHis
                                                                                                                                                                                                                                                                                                                                                             1 (bases 1 to 10632)
Bult,C.J., White,O., Olsen,G.J., Zhou,L., Fleischmann,R.D.,
Sutton,G.G., Blake,J.A., FitzGerald,L.M., Clayton,R.A.,
Gocayne,J.D., Kerlavage,A.R., Dougherty,B.A., Tomb,J., Adams,M.D.,
Reich,C.I., Overbeek,R., Kirkness,E.F., Weinstock,K.G.,
Merrick,J.M., Glodek,A., Scott,J.D., Geoghagen,N.S., Weidman,J.F.,
Fuhrmann,J.L., Nguyen,D.T., Utterback,T., Kelley,J.M.,
Peterson,J.D., Sadow,P.W., Hanna,M.C., Cotton,M.D., Hurst,M.A.,
Roberts,K.M., Kaine,B.B., Borodovsky,M., Klenk,H.P., Fraser,C.M.,
Smith,H.O., Woese,C.R. and Venter,J.C.
Bult, C.J., White, O., Olsen, G.J., Zhou, L., Fleischmann, R.D., Sutton, G.G., Blake, J.A., FitzGerald, L.M., Clayton, R.A., Gocayne, J.D., Kerlavage, A.R., Dougharty, B.A., Tomb.J.-F., Adams, M.D., Reich, C.I., Overbeek, R., Kirkness, B.F., Weinstock, K.G. Merrick, J.M., Glodek, A., Scott, J.D., Geoghagen, N.S., Weidman, J.F., Fuhrmann, J.L., Nguyen, D.T., Utterback, T., Kelley, J.M., Peterson, J.D., Sadow, P.W., Hanna, M.C., Cotton, M.D., Hurst, M.A.,
                                                                                                                                                                                                                                                        Complete genome sequence of the methanogenic archaeon, Methanococcus jannaschii Science 273 (5278), 1058-1073 (1996) 96337999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Methanocaldococcus jannaschii DSM 2661
Methanocaldococcus jannaschii DSM 2661
Archaea; Euryarchaeota; Methanococci;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Complete genome.
U67480 L77117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Methanocaldococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3 GluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Methanocaldococcaceae; Methanocaldococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspVallleIleThr
                                                                                                                                                                                                 (bases 1 to 10632)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      similarity; putative"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:2826265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GB.990331, GB.D90332, GB.D90333, GB:D90334, GB:X14
GB:MR29145, GB:M60718, GB:M73239, SP:P14210, PID:11
PID:184032, PID:184034, PID:219700, PID:306846, PP
PID:32084, and PID:337936; identified by sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.39
114.00
54.55%
29.55%
22.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            x AE017175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10632 bp
jannaschii DSM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1-300454)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      41229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
2661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Methanococcales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300454
26
22
22
40
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BCT 02-JUN-2004
E 150 of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID:1378042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GB:X16323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PID:32082,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41025
                                                                                      .
;
```

	/locus_tag="MJ0246"	
CDS	complement (1627 1926)	CDS
gene	complement(16271926) /locus tag="MJ0246"	gene
	ROR	
	/brutern_id="Akb96233.1" /db_xref="GI:1590978"	
	/transl_table=11 /product="SSU ribosomal protein S17B"	
	<pre>by sequence similarity; putative" /codon_start=1</pre>	
	0:172460 PID:575695 pe	
	/locus_tag="MJ0245"	
CDS	/10cus_tag="MJU245" complement (1391, .1582)	CDS
gene	complement(13911582)	gene
	ALEGDFEKAREIHYKLFPLMKAMFIETNPIPVKTALNMMGRPAGELRLPLCEMSEEHK KILENVLKDLGLI"	
	TPYYNKPTQEGLRKHFGKVAESINLPIVLYNVPSRTAVNLEPKTVKLLAEEYSNISAV KEANPNLSQVSELIHDAKITVLSGNDELTLPIIALGGKGVISVVANIVPKEFVEMVNY	
	/translation="MFKGVYPALTTPFKNKEVDFDGLEENINFLIENGVSGIVAVGTT GESPTLSHEEHKKVIEKVVDVVNGRVQVIAGAGSNCTEEAIELSVFAEDVGADAVLSI	
	/db_xref="GI:1590977"	
	/product="dinydrodipicolinate synthase (dapa)" /protein id="AAB98232.1" ·	
	Ttable=11	
CDS	/codon start=1	
gene	GB:AL009126 percent identity: 45.64; identified by	
	/note="similar to GB:L08471 SP:Q04796 PID:142830	
	complement (5111380)	CDS
		•
	REDEAVESNEEFREKELKLAPKVNKEGTVVVEKGSWEK" COMplement (5111380)	gene
	/translation="MDEKTIEKIKKEAEEIINKFSEVLEKFNLEMEESYYIIDTRNVL	
	/procein_id="AAB98231.1" /db_xref="GI:1590976"	
	/product="conserved hypothetical protein"	
	/codon_start=1 /transl_table=11	
CDS	rity; putative"	
gene	/locus_tag="MJU243" /note="similar to GB:AE000666 percent identity: 47.95;	
	complement (244492)	CDS
	/locus_tag="MJ0243"	Gerra
	/translation="MRWKWYKKRLRRLKRERKRARS"	
	/db_xref="G1:1592277"	
	/product="LSU ribosomai protein L416" /protein id="AAB98230.1"	
	/transl table=11	
	רכסלסט start=1/codon start=1	
	/note="similar to SP:P28751 percent identity: 63.64;	
	/locus_tag="MJ0242"	i i
	/locus_tag="MJ0242" complement(59, .127)	CDS
CDS	.01	gene
arran	/db xref="taxon:243232"	
	0	
		source
	On Jan 30, 1998 this sequence version r Location/Qualifiers	COMMENT FEATURES
	Submitted (27-AUG-1996) The Institute for Genomic Research, 9712	JOURNAL
	Smith, H.O., Woese, C.R. and Venter, J.C. Direct Submission	TITLE
	Roberts, K.M., Kaine, B.B., Borodovsky, M., Klenk, H.P., Fraser, C.M.,	

```
/locus_tag="MJ0251"
complement(6214. .6657)
/locus_tag="MJ0251"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="similar to SP:P07022 PID:147175 PID:551824
GB:U00096 PID:1788951 percent identity: 34.78; identified by sequence similarity; putative"
/codon start=1
/transI_table=11
/product="chorismate mutase/prephenate dehydratase (pheA)"
/protein_id="AAB98234.1"
/db xref="G:1590979"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="mfrgymesakefkkvvdTisTllDeIcfevdeegIkasamdpsh
valvsleIfplafeeyeadsHDIGIDLEAFKKVmnrakakDrlILeLDeEkNKLNVIF
ENTGKRKFSLALLDISASSVKVPEIEYPNVIMIKGDAFKEALKDADLFSDYVIKLADE
DKFVJHAKGDLNENBAIFEKDSSAIISLEVKEEAKSAFNLDYLMDMYKGVSSGDIIKI
VLGNDMPLKLEYSIAGVNLTFLLAPRIEG"
                                                                                                                                                                                                                                                                     /locus_tag="MJ0250"
/note="simllar to SP.B35997 SP.B38711 PID:2131116
PID:486271 PID:500694 percent identity: 42.59; identified by sequence similarity; putative"
/codon start=1
/transI_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MRVFIIIIYPRCFSKDHKPYFVITMYESLKNYFFEEIKNDKLLK
LPDDFYDDIREYIKNIKDDIELERVKYYFKELRKLRIYKALYLDNERENLLPEELNII
HAIENIVVELKIEETPEFKKPTEIDTPKPIYTINDIDVVKVDKNFPPFTDGTFIYDLN
KNDVLSLDKKISHILEKHRIISRIGESYENPEES"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /locus tag="MJ0248"
/note="hypothetical protein; identified by GeneMark;
putative"
                                                                                                                                 /translation="wmelipoprtkflrvqcpecnneqivfgspatvvkclfcgkvlv
eprogkgkvkakileilg"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /locus tag="MJ0247"
/note="similar to Sp:P15873 PID:4193 PID:476047 PID:536356
percent identity: 31.33; identified by sequence
similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/trans1_table=11
/product="M. jannaschii predicted coding region MJ0248"
/protein id="AAB98243.1"
/db_xref="GI:1590981"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /locus_tag="MJ0248"
2999. .3583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transT_table=11
/product="proliferating;cell nuclear antigen (pol30)"
/protein_id="AAB98235.1"
/db_xref="GI:1590980"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /trānslation="MIEKLAEIRKKIDEIDNKILKLIAERNSLAKDVAEIKNQLGIPI
NDPEREKYIYDRIRKLCKEHNVDENIGIKIFQILIEHNKALQKQYLEETQNKNKK"
                                                                                                                                                                                      /product="SSU ribosomal protein
/protein_id="AAB98237.1"
/db_xref="GI:1499029"
                                                                                                                                                                                                                                                                                                                                                                                                                                  /locus_tag="MJ0250"
3913. .4101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3913. .4101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="LSU ribosomal protein L44E"
/protein_id="AAB98236.1"
/db_xref="GI:1499028" ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /locus_tag="MJ0249"
/note="similar to SP:P32411 percent identity: 38.71;
identified by sequence similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /locus_tag="MJ0249"
3561: \\\ 3845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 locus_tag="MJ0247"
228. .2971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _table=11
                                                                                                                                                                                                                                              S27E"
```

```
WPCOMMENT
                                                                                                                                                                                                                                                                                            RESULT 14
AR271569_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-4 (1-103) x U67480 (1-10632)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                            Sequence split
       Fragment Name
AR271569 00
AR271569 01
AR271569 02
AR271569 03
AR271569 06
AR271569 07
AR271569 07
AR271569 07
AR271569 00
AR271569 10
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
AR271569 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
..
                                                                                                                                                                                                                                                                                                                                                                                                    1752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1932
                                                                                                                                                                                                                                                                                                                                          1692
                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41
                                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr :::||| :::::||| ::::||
                                                                                                                                                                                                                                                                                                                                                                     Ile
                                                                                                                                                                                                                                                                                                                                                                                                                             ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATATTAAAGCTAATTGCTGAAAGAAATAGTTTAGCTAAGGATGTAGCTGAGATAAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTACAATGATAGAGAAACTTGCTGAAATTAGGAAGAAGAATGATGAGAGTTGACAATAAG
                                                                                                                                                                                                                                                                                                                                                                                                  AAACTTTGTAAAGAACATAACGTTGATGAAAATATTGGCATTAAAATATTTCAAATACTT
                                                                                                                                                                                                                                                                                                                                       ATA 1690
                                                                                                                                                                                                                                                            into
                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /locus_tag="MJ0252"
/notee"similar to SP:P42405 PID:710637 PID:1805418
GB:AL009126 percent identity: 34.48; identified by sequence similarity; putative"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /locus_6715. .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transT table=11
/product="conserved hypothetical protein"
/product="conserved hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="menlekklellkklrefllinlelkklmqelnvdsdlyeayekv
TKlvrepniklyrqyydaikemfyeeygkkrkdlswypkidynrckncekcisfcprg
                                                                                                                                                                                                                                                            17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VYDAENGKVVVKYPYSCIVNCNACSIMCCENNAIIFPDEKIPRRN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="ferredoxin II"
/protein_id="AAB98238.1"
/db_xref="GI:1499030"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="similar to SP:P00211 percent identity: 37.04; identified by sequence similarity; putative"
                         900001
1000001
1100001
1200001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.114
112.00
53.09%
24.69%
21.79%
                                                                                                      800001
                                                                                                                      500001
600001
700001
L50000
                                                                                                                                                                                 100001
200001
300001
                                                                                                                                                                                                                                            Begin
                                                                                                                                                                  40000
                                                                                                                                                                                                                                                            fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              tag="MJ0252"
            1410000
1510000
                                         1210000
1310000
                                                                       1110000
                                                                                                                                    610000
710000
                                                                                                                                                                                                 110000
210000
310000
                                                                                                       910000
                                                                                                                                                                  510000
                                                                                                                                                                                    410000
                                                                                                                                                                                                                                                             FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels:
Gaps:
                                                                                                                                                                                                                                                             AR271569
                                                                                                                                                                                                                                                             Accession
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10632
20
23
38
0
                                                                                                                                                                                                                                                                                                                                                                                                    1693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1873
                                                                                                                                                                                                                                                                                                                                                                                                                                80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40
```

밁 S B Ś 밁 Ś 맑 Ş 밁 Ś

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AR271569_16
Continuation (13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AE000858/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-4 (1-103)
                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Хо
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          38478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38358 GITACAATGATAGAGAAACTTGCTGAAATTAGGAAGAAGATTGATGAGATTGACAATAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38418 ATATTAAAGCTAATTGCTGAAAGAAATAGTTTAGCTAAGGATGTAGCTGAGATAAAAAAAT 38477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21
                                                                                                                                                                                                                                                                                                                                                                         Smith, D.R., Doucette-Stamm, L.A., Deloughery, C., Lee, H., Dubois, J., Aldredge, T., Bashirzadeh, R., Blakely, D., Cook, R., Gilbert, K., Harrison, D., Hoang, L., Keagle, P., Lumm, W., Pothier, B., Qiu, D., Spadafora, R., Vicaire, R., Wang, Y., Wierzbowski, J., Gibson, R., Jiwani, N., Caruso, A., Bush, D. and Reeve, J.N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Methanobacterium thermoautotrophicum from k (section 64 of 148) of the complete genome. AE000858 AE000666 AE000858.1 GI:2621885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Methanothermobacter thermautotrophicus str. Delta H
(Methanobacterium thermoautotrophicus str. deltaH)
Methanothermobacter thermautotrophicus str. Delta H
Archaea; Euryarchaeota; Methanobacteria; Methanobacteriales;
                                                                                                                                                                                          Submitted (10-AUG-1997) Genomics and Technology Development, Therapuetics Corporation, 100 Beaver Street, Waltham, MA
                                                                                                                                                                                                                                                Smith, D.R
                                                                                                                                                                                                                                                                                                                      Complete genome sequence of Methanobacterium thermoautotrophicum deltaH: functional analysis and comparative genomics
J. Bacteriol. 179 (22), 7135-7155 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Methanobacteriaceae; Methanothermobacter.
1 (bases 1 to 13242)
                                                                                                                                                                                                                                 Direct Submission
                                                                                                                                                                                                                                                                                                         98037514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AE000858
                                                                                                                                                                        02154-8448,
                                                                                                                                                                                      Therapuetics Corporation, 100 Beaver
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAACTTTGTAAAGAACATAACGTTGATGAAAATATTGGCATTAAAATATTTCAAATACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATA 38600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                (bases 1 to 13242)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1600001 1664976
of 17) of AR271569 from base 1200001 (AR271569 Sequence 1 from patent L
                                                                                                 Delta H"
                                    /strain="Delta H"
/db_xref="taxon:187420"
                                                                                                                                  1. .13242
                                                                                                                                                   Location/Qualifiers
note="synonym: Methanobacterium
                     /clone="MTH"
                                                                             mo1
                                                                                                                organism="Methanothermobacter"
                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x AR271569_12 (1-110000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.36
112.00
53.09%
24.69%
21.79%
                                                                         _type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13242 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from bases 725908 to 739149
                                                                                                                  thermautotrophicus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      110000
20
23
38
0
   thermoautotrophicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCT 19-JUN-2002
                                                                                                                  str.
                                                                                                                                                                                                             Genome
   Str.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             38417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20
```

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                   Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="wir.i./

complement (680. .1216)

/gene="WTH797"

/note="punction Code:14.00 - Unknown,

/note="punction AC:S33068, p()=0.055, p
                                                                                                                                                                                                                                                                                                                                                                             /note="Function Code:5.01 - L-Amino Acid Metabolism, Alanine--aspartate and glutamate metabolism; similar to, sp:LN:DHAS_METJA AC:Q57658, p()=2.48-96, pid=55% / Codon start=1 / Trans1_table=11 / product="aspartate-semialdehyde dehydrogenase" / protein_id="AAB85399.1" / db_xref="GI:2621889"
/note="Function Code:5.07 - L-Amino Acid Metabolism,
Lysine biosynthesis; similar to, pir:LN:F64352 AC:F64352,
p()=8B-80, pid=56%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="MHPTLLGPDLSVLYFFNSVLASPFLDFLMPLLTFGGTQAFWVILCLLLYLLGGEDEREAAFMALTALVLGFFLSEALKAVIARPRPYEVIGWVRHATVAGGYSMPSGHAVAAFAGFISLYFRLGRPWFFIILASLVGISRIYLGLHYPSDVLAGAVLGVLCAFTALKIDERVKCFGLCRFDRLQQN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (1431. .1991)
/gene="MTH798"
complement (1431. .1991)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="unknown"
/product="unknown"
/protein_id="AAB85297.1"
/db_xref="(G1:2621887"
/translation="MERDTMRFMRDSEKEQLKLLVKACMLEISKLKMDLRKCRENSDN
/translation="MERDTMRFMRDSEKEQLKLLVKACMLEISKLKMDLRKCRENSDN
/CERVKELEDALKIRDRRIDELERIMAEKDRVIQELKGIIADKESRITDLKRYREYFQA
LTQKPEKDLTSEQGQIYKTLFDERATTEEMLDFINEIGFKDLKLENMVQILRNLERKG
YFRSVSEGRRTLMEKVKR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="comserved protein"
/protein id="AABB5296.1"
/db_xref="G1:2621886"
/translation="MKIIDLTHKIEDSMPVFPGDPPVKLRIESSDADYITSSLSLGMH
/translation="MKIIDLTHKIEDSMPVFPGDPPVKLRIESSDADYITSSLSLGMH
TGTHIDAPLHAHCSALTVDGIGLEELTGEGFLVSGGBILNGGDLAVIRTGWSSRWGSE
GYFRDYPGIKRRLAEBLVEHEVLGVCVDGPSVDRPGETDIHKLLLKNGIWIVENITNT
DLLPPKFRLFVVPLSVRAEASPARVFAVTGSGSGSSKDRSSFQR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="MTH796"
62..676
/gene="MTH796"
/note="Function Code:14.01 - Unknown, Conserved protein;
/note="Function Code:14.01 - Unknown, Conserved protein;
                                                                                                                                                                                                                                                 DAYTIKRVYVSTMQAVSGAGYNGVPSMAILDNLVPFIGGEEEKIETETLHLLGELDEG
VVKPASFGVSASCHRVPVVDGHTEAVFIELDDEFDIDDVREAMDKFRGLPQKLGLHSA
                                                                                                                                                                                                                                                                                                 /translation="mvnvgvlgatgmvgqrfiqmldkHpefelttlaassrsagkpyg
EVANWYLDCEMPESVRDMEVVETDPSAVGDVDILFSALPADVARKVEPKFAEKYIVAS
NASAMRMEPDVPLVIPEVNPEFLDLIEVQQRRRGWDGFIVTNPNCSTIALTLTLKFIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement (1998. .3041)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (1998. .3041)
/gene="MTH799"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Function Code:12.09 - Cell Processes, Pro/
peptide secretion; similar to, sp:LN:Y374_METJA
AC:Q57819, p()=1.7E-13, pid=28*"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (680. .1216)
/gene="MTH797"
                                                                                                             complement (3054. .3875)
                                                                                                                                                                   complement (3054. .3875)
                                                                                                                                                                                               ASILNAELINEIL"
                                                                                                                                                                                                                        PEKPVVVRDEENRPQPRMDRDMDGGMAVTVGRLREDAAFKNSLRYVLVGHNTVRGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transT_table=11
/producT=-bacitracin transport permease related
/protein id="AAB85298.1"
/db_xref="GI:2621888"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /codon_start=1
/transl_table=
                                                                                    /gene="MTH800"
                                                                                                                                            /gene="MTH800"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="MTH799"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="MTH798"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               n, ; similar to, pid=34%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pid=30%"
                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                        Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sg
```

```
/translation="MKIEGTVVAMVTPFTEDDVVDEAGLRENINYLIENGVDGLLVAG TTGESATITHEEQRRMIDILVDEVNGRVRTVAGAGSNSSREAMGLVEYAEDAGADAAL VITPYYNKPQPHGLIEHYTMLEEAADIPLIIYNVESRTGTDIDOTVAELAKLDGIIG IKAESPDLDKVSMLRSRLMDLGLDDFTVLSGNDNLTLPMISMGAEGVISVVANVDPAR MSRLVNEALSGDFESAMKTHYELYSLMKVLFIESNPVPVKEALNMMGKARGSCEDAPG TPAGCKP"
                                                                                                                                                                                                                                                                                                                                                                /translation="MELIVAKFGGTSIGNGRRIKKAARSVVKEYMKGRKVVVVVSAIN
KTIDELLQIVDEAMEDAVTEKQLAEIVSMGEMTSVRIFSAIEALGVKSEYIDPFMDE
WPIITDSNLLAKVUPEATEEKSRELLKLLDGOIIPVVGGFLGRDPNGYITTLLGRGG
DITAFLLGHCLKADEVIIVTDVGGVMSTDPNKLQGAKKLDKISVEEMRDLATHGAQVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (4776. .5996)
/gene="MTH802"
complement (4776. .5996)
/gene="MTH802"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="Function Code:5.07 - L-Amino Acid Metabolism, Lysine biosynthesis; similar to, sp:LN:DAPA_METUA AC:057695, p()=1.5E-69, pid=50%"
/codon_start=1
/transl_table=11
/product="dihydrodipicolinate synthase"
/product="damaAABB5301.1"
                                                                                                                                                                                                                                                                         complement (6236. .6532)
/gene="MTH804"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Function Code:10:04 - Metabolism of Macromolecules, Ribosomal proteins; similar to, sp:LN:R17E_METJA AC:P54026, p()=3.3E-12, pid=46%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (6046. .6234)
/gene="MTH803"
complement (6046. .6234)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="mirvavtgacgrmgsgiirrvleeedmelvaaieapgtplrgrd
IGEFTGRGSVGVEVTDASNLADTLAETEPDVLVDFTVASAAVETIKTSTEAGVNLVVG
TTGFSEEEMQTVRDCIERSGVRAVIAPNMAVGVNVPFKVLRDLAPILSDYDVEIIEAH
                                                                                                                                                                                                                                                  complement (6236. .6532)
                                                                                                                                                                                                                                                                                                                                   /trānslation="MGNIRTSFVKRIAKEMIETHPGKFTDDFDTNKKLVEEFSTVSTK
HLRNKIAGYITRIISQQK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DGKKAYELVRGVLE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HPHALKYKDPDIKAKI IGFEHGDLSAPGTE I IGPSKNKMYKTTTLNPDP I SVVAVVGE
KILNKPGILARLTSRLAENS IN I IGISTGQNSVT I FVDKKDADEAHRLLHDVV I ADDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (3928. .4779)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GDHIVLFAGDGERLEIVHRAHSRDAFIGGVIRAIRFIEDAEPGRIMDMGDVLGIN"
complement (3928. .4779)
translation="MDEYRAREVLRRSRQKIDGIDRDILDLITSRIALAREIAEAKEV/
                          /codon_start=1
/transT_table=11
/product=-chorismate mutase,
/protein_id="AAB85304.1"
/db_xref="GI:2621894"
                                                                                                                                                                /note="Function Code:5.11 - Tyrosine metabolism; to, pir:LN:G64330 AC:G64330, p()=8.9E-10, pid=32%
                                                                                                                                                                                                                       /gene="MTH804"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="MTH803"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LSSLSLGRDIAMITISSPDFIDTPGIISEITKPLRDNDLNIVEISSSQTSVVIFVDWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="aspartokinase II alpha subunit"
/protein_id="AAB85302.1"
/db_xref="GI:2621892"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   trans table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="GI:2621891"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="MTH801"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HRHKKDAPSGTAVRALEVISEATGRRASEVAVHGRSGLTGERSRDEIGVHAVRGGDIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="dihydrodipicolinate reductase"
/protein_id="AAB85300.1"
/db_xref="GI:2621890"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="MTH801"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _table=11
                                                                                                                                                 pid=32%"
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
Search completed: October Job time: 1687.4 secs
                                                                뭐
                                                                                          Ş
                                                                                                                              밁
                                                                                                                                                       5
                                                                                                                                                                                           В
                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                            US-10-089-514-4 (1-103) x AE000858 (1-13242)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sg
                                                                                                                                6325
                                                                                                                                                                                                6385
                                                                                                                                                                                                                                                                                                                               6505
                                                                6268 ACTGAACAGAAAGAAATGTTAAGG
                                                                                                                                                                                                                                                              6445 TCAAGGATAGCCCTTGCACGGGAGATAGCAGAGGCCCAAGGAGGTCCTTGGAATGGAGATC 6386
                                                                                               87
                                                                                                                                                              67
                                                                                                                                                                                                                        47 MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis 66
                                                                                                                                                                                                                                                                                              27
                                                                                                                                                                                                                                                                                                                                                          7 LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                            ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet 46
                                                                                             ValGluAspLeuValMetSerArg
                                                                                                                                                                                             CTGGATCCTGAAAGGGAACTCCAGATTATAGAGAGGACCCGGAAAATCGCCAGGGAAAAT
                                                                                                                                                                                                                                                                                                                             CTCAGAAGATCCAGGCAGAAGATAGATGGAATAGACAGGGACATACTTGACCTCATAACC 6446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LGMEILDPERRIGIERTRKIARENGIDENKLTELMKILMDLSKTEQKEMLRRQ"
COMplement (6573. .7442)
/gene="MTH805"
Complement (6573. .7442)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             / translation="mwvvkktvrsposatvinalatorgsafoiglrveaeaeiidsg
vecisregadtslmelctrmviehygvdagvrvvtssdlpvasglsssaasnatyma
vesilsdefolopmedfemlmnavdasloagysvtgaxudasaafygglivtudnmer
iilrepmenokvliympdrksltaqsdvprmkllapmvdmafrevldgrvhsaltling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transI table=11
/product="conserved protein (homoserine kinase related)"
/protein_id="AAB85305.1"
/db_xref="GI:2621895"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Function Code:14.01 - Unknown, Conserved protein;
similar to, pir:LN:G64479 AC:G64479, p()=1.8E-36, pid=31%"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="MTH805"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                            0.268
109.50
54.55%
29.55%
21.30%
               ū
               2005, 15:30:35
                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                6245
                                                                                               94
                                                                                                                                                                                                                                                                                                                                                                                                                           13242
26
22
39
1
                                                                                                                                                                                             6326
                                                                                                                                                              98
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Command line parameters:

-MODEL=frame+ p2n.model -DEV=xlh
-Q=/cgn2_1/USPTO_spool h/US10089514/runat_04102005_105743_8027/app_query.fasta_1.1621
-Q=/cgn2_1/USPTO_spool h/US10089514/runat_04102005_105743_8027/app_query.fasta_1.1621
-DB=N_Geneseq -QEMT=fastap -SUFFIX=rng -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DCALIGN=000 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER-US10089514 @CGN_1 1 860 @runat_04102005_105743_8027 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQÜERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
      514
514
486.5
439
256
                                                                                                                           Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Xgapop 10.0 , X
Ygapop 10.0 , X
Fgapop 6.0 , F
Delop 6.0 , I
                                                                                                                                                                                                                                                                                                          5:
6:
7:
8:
9:
10:
11:
12:
      100.0
100.0
94.6
85.4
49.8
                                                                                                                           Match
                                                                                                                                           Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            October 4, 2005, 21:38:23; Search time 180.876 Seconds (without alignments) 3371.006 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N_Geneseq_16Dec04:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-4
514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4390206 segs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MTEQNELQRIRAELDALDGT.....MCRVEDLVMSRESLTAEDRR 103
                                                                                                                                                                                                                                                                                                 geneseqn2003bs:*
geneseqn2003cs:*
geneseqn2003ds:*
geneseqn2004as:*
geneseqn2004as:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Copyright
                                                                                                                                                                                                                                                                                                                                                                                                        geneseqn2002as:*
geneseqn2002bs:*
geneseqn2003as:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       geneseqn2000s:*
geneseqn2001as:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          geneseqn1990s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 geneseqn1980s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  geneseqn2001bs:*
                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd
                                                                                                                           BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2959870667 residues
  AAF86410
AAL50181
ABZ69799
ABZ69798
AAT58552
                                                                                                                        ij
                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.05
Aaf86410 4-amino-4
Aal50181 S venezue
Abz69799 Plasmid p
Abz69798 Plasmid p
Aat58552 Streptomy
                                                                                                                      Description
  RESULT 1
AAR86410
AAR86410
AAR86410
AAR86
AX
AAR86
AX
AAR86
AX
AAR86
AX
AAR86
AX
AAR86
AX
AAR86
AX
AAR86
AX
AAR86
AX
AAR86
AAR86
AX
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86
AAR86

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAF86410 standard; DNA; 312
                                       29-SEP-1999;
                                                                                                                        05-APR-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAF86410;
                                                                                                                                                            WO200123542-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    888.5
5555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         89.5
89.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20.4
119.8
119.8
119.6
119.6
119.6
119.6
118.7
118.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        177.55
177.55
177.55
177.55
177.55
177.55
177.55
177.55
177.55
177.55
```

```
256
120
120
120
110
101
105
105
105
107
107
107
101
101
101
101
                                                                         1238
1238
110000
243072
                                                                                                          2888
110000
110000
110000
110000
949688
1125
1125
1125
1152
1152
1153
10000
10000
110000
110000
110000
110000
110000
110000
1104
18096
18096
652
652
804
960
1653
1791
                                                                                                                                                                                   999111191
                                   10
10
10
10
10
                                                                                                                   8
6
10
                                                                                                                                            10011
                                                                                                                                                                                                                                                     AAT59268

ACF673172

0 ACF67367 49

0 ACF653871

AAV2120912

1 ADM2708116

0 ADF00853

1 ACH98708

AAD50752

2 ADJ98178
                                                                                                 ACF66455
ABN83448
AAD50753
ACF69141
ABA99612
ABN18494
ABD06210
ABD06101
ABD06120
ABD06080
                                                                                                                                                            ABN71527_C
ABN69596
ACH98777
ACF69143
                                         ACA27476
AAS59588
ACF64517
AAC74584
                                                                                                                                                                                             ABN83449
AAN71054
AAN71053
AAN71109
AAN71111
AAL40136
ABN66826
                                                                                           AAL46032
                                                                                                                                            ACF65382
                                                                                                                                                                                    20
                              Abn83448 Escherich
Aad50753 Escherich
Acf69141 Photorhab
Aba99612 E. coli t
Aal46032 E coli Ty
Continuation (21 o
Acf65382 Photorhab
Aca27476 Prokaryot
Aas59588 Propionib
Acf4517 Propionib
Acf45184 Human ORF
Abn18494 Human ORF
Abn18494 Human ORF
                                                                                                                                  Adj98178 Pantoea a Abn83449 Erwinia h Aan71054 Optimized Aan71053 Escherich Aan71159 pheA arof Aan40136 Isoprenoi Abn66826 Streptoco Continuation (6 of Abn65956 Streptoco Ach9877 Klebsiell Acf66382 Photorhab Acf66382 Photorhab Acf66385 Photorhab
                                                                                                                                                                                                                                                            Aat59268 Streptomy
Acf71772 Photorhab
Continuation (50 o
Continuation (2 of
Continuation (13 o
Continuation (17 o
Adf00853 Bacterial
Ach98708 Klebsiell
Add0752 Erwinia h
        Abd06101
Abd06120
                         Abd06210 Pseudomon
        Pseudomon
Pseudomon
 Pseudomor
```

ALIGNMENTS

₿₽.

```
T 22-JUN-2001 (first entry)

X 4-amino-4-deoxychorismic acid mutase coding sequence.

X Metabolite; benzene; chorismic acid; p-aminophenylpyruvic acid;

X Metabolite; benzene; chorismic acid mutase; papB; ds.

X Metabolite; benzene; chorismic acid; p-aminophenylpyruvic acid;

X Metabolite; benzene; chorismic acid mutase; papB; ds.

X Streptomyces venezuelae.

X Streptomyces venezuelae.

X Key Location/Qualifiers

Y CDS 1..312

/*tag= a
/product= "4-amino-4-deoxychorismic acid mutase'

X W0200123542-A1.

X W0200123542-A1.

X 29-SEP-2000; 2000WO-JP006783.

X 29-SEP-2000; 2000WO-JP006783.

X (MEIJ) MEIJI SEIKA KAISHA LTD.
```

```
RESULT 2
AAL50181
ID AAL5
XX
AC AAL5
XX
AC AAL5
XX
AC AAL5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local
Query Match
DB:
                                                                                                                                                                                                   á
                                                                                                                                                                                                                                    Вþ
                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                   밁
                                                                                                                                              Ş
                                                                                                                                                                           뫄
                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                          당
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
Pred. No.:
Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-4 (1-103) x AAF86410 (1-312)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      as to produce a secondary metabolite. The secondary metabolite has a contenering skeleton free from substitution at the para-position by a nitrogen-containing functional group, thereby enabling the production of a secondary metabolite with a benzene ring skeleton substituted at the para-position by a nitrogen-containing group. The transformant organism of the present invention has been produced by transferring a gene participating in the biosynthesis pathway from chorismic acid into paninophenylpyruvic acid. The present sequence is the coding sequence for 4-amino-4-deoxychorismic acid mutase (papB), from Streptomyces venezuelae. papB participates in the biosynthesis pathway from chorismic acid into p-aminophenylpyruvic acid, and so the papB gene can be used to produce the transformant of the present invention. The transformant can be used to produce the etabolites for application in pharmaceuticals, veterinary drugs and agrochemicals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Yanai K,
Murakami
 28-JAN-2003
                               AAL50181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Transformant producing secondary metabolite modified with functional group e.g. benzene with nitrogen-containing substituent at para-position, PF1022, with ease at low cost, for application in pharmaceuticals and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim
                                                          AAL50181 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                present invention relates to a transformant having been modified
                                                                                                                                              101
                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-290517/30
DB; AAB82072.
                                                                                                                   301
                                                                                                                                                                                                                                    181
                                                                                                                                                                                                      81
                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                       41
                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13; Page 65;
                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                                                                                            μ.
                                                                                                                                                                                                                                                                                                                                                                                                                                       ۳
                                                                                                                                           Aspargarg 103
                                                                                                                                                                                                                                                                                                              ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                          MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                   GACCGGCGG
                                                                                                                                                                                             IleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAlaGlu
                                                                                                                                                                                                                                                      ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                            CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGT
                                                                                                                                                                                                                                                                                                                                                   CTCCTGGACACGCGCGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                             LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                           ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                   CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Okakura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B₽;
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.38e-61
514.00
100.00%
100.00%
100.00%
                                                          DNA; 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yasuda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              106 C;
                                                          BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Watanabe M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ţ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ċ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Miyamoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              312
103
0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Other;
                                                                                                                                                                                                                                                                                          rcaaggacagggccgcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Midoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                    100
                                                                                                                                                                           300
                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                              80
                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                              40
                                                                                                                                                                                                                                                                                                                                                                                                           60
```

```
맑
                                             á
                                                                      밁
                                                                                           5
                                                                                                                    밁
                                                                                                                                           S
                                                                                                                                                                                                      Best Local S
Query Match:
                                                                                                                                                                                                                                                                                       US-10-089-514-4
                                                                                                                                                                                                    Query
                                                                                                                                                                                                                            Percent Similarity:
                                                                                                                                                                                                                                                              Alignment
                                                                                                                                                                                                                                                                                                                      The transformants are producing PF1022 substance derivatives by fermentation, for use as pharmaceuticals or veterinary drugs. The sequence is a substance PF1022 coding sequence from Streptomyces
                                                                                                                                                                                                                                                                                                                                                      The present invention relates to transformants capable of producing PF1022 substance derivatives. These were obtained by transferring a gen participating in the biosynthesis pathway from chorismic acid to paminophenylpyruvic acid (biosynthesis gene) into a phenylalanine-requiring host derived from an organism producing the PF1022 substance.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Novel biosynthesis gene-transferred tr. substance derivatives by fermentation, drugs with anthelmintic activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Substance PF1022; biosynthesis; transgenic; chorismic acid; anthelmintic; phenylalanine; p-aminophenylpyruvic acid; pharmaceutical; veterinary drug; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ß
                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 15; Page 85; 116pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22-MAR-2001; 2001JP-00082227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22-MAR-2002; 2002WO-JP002782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200277244-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (MEIJ ) MEIJI SEIKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              venezuelae PF1022 substance
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2003-018934/01.
DB; AAO19564.
                        121
 61
                                              41
                                                                       61
                                                                                                                                                                                                                 Similarity:
                                                                                           21
                                                                                                                                                                                                                                                                                      312
                       MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspVallle
                                                                      CTCCTGGACACGGTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                            LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                      ATGACCGAGCAGAACGAGCTGCAGCGGCTGCGCGCGACGCCCTCGACGGGACG
                                                                                                                                                                   (1-103)
                                                                                                                                                                                                                                                                                      B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'n
                                                                                                                                                                                                                                                                                      54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag=  a
/product= "PF1022 substance"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                   2.38e-61
514.00
100.00%
100.00%
100.00%
                                                                                                                                                                  x AAL50181
                                                                                                                                                                                                                                                                                      A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KAISHA LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Watanabe
                                                                                                                                                                                                                                                                                      106
                                                                                                                                                                                                                                                                                    Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                   (1-312)
                                                                                                                                                                                                                                                                                      111
                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                      Length:
Matches:
                                                                                                                                                                                                                                                                                      ç,
                                                                                                                                                                                                    Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Moriya
                                                                                                                                                                                                                             Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                transformants for producing PF1022 on, as pharmaceuticals or veterinary
                                                                                                                                                                                                                                                                                      41
                                                                                                                                                                                                                                                                                      Η.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       H
                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                    Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Murakami
                                                                                                                                                                                         312
103
0
                                                                                                                                                                                                                                                                                      0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Н
                                                                                                                                                                                                                                                                                                                                  present
                                                                                                                                                                                                                                                                                                                                                                                            gene
 80
                                              60
                                                                                             40
                        180
                                                                      120
                                                                                                                      60
```

CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC

```
RESULT 3
ABZ69799
  Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                     tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-trna with at least one unnatural amino acid in the translation system and the O-trna recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the Asplitag mutant of chloramphenicol acetyltransferase (CAT), the Tyri63TAG mutant of mouse dihydrofolate reductase (DHFR), or a Tyri63TAG mutant of mouse dihydrofolate reductase comprising CHOOH His6tag. The unnatural amino acid is provided exogenously. The translation system is a cell and the unnatural amino acid is biosynthesised by the cell. The present sequence represents a plasmid containing the individual genes papaBC that encode the enzymes used to carry out the conversion of chorismate to the unnatural amino acid p-aminophenylalanine (pAF)
                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                 The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal amino
                                                                                                                                                                                                                                                                                                                                                                              Example 4;
                                                                                                                                                                                                                                                                                                                                                                                                         aminoacyl tRNA synthetase.
                                                                                                                                                                                                                                                                                                                                                                                                                   Composition useful for producing protein comprising unnatural amino has translation system comprising orthogonal tRNA and orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase; ds;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS; orthogonal aminoacyl tRNA synthetase; unnatural amino acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 08-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABZ69799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-APR-2001;
06-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           biosynthesis; p-aminophenylalanine; pAF; chorismate.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Plasmid papABC
                                                                          ..
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (SCRI ) SCRIPPS RES INST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E,
                                                                                                                   3305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Aspargarg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       standard; DNA; 3305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAlaGlu 100
                                                                                                                                                                                                                                                                                                                                                                           Page 127-128; 188pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wang L, /
Mehl RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2001US-0285030P
2002US-0355514P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first
                                                                                                                   BP; 445 A; 1327
 3.69e-56
486.50
98.10%
98.10%
94.65%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Anderson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nderson JC,
Pastrnak M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP
                                                                                                                 C; 1121 G;
 Conservative:
Mismatches:
Indels:
Gaps:
                                                        Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chin JWK,
Santoro (
                                                                                                                412 T; 0 U; 0 Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Liu
103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮸
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Magliery
Z;
                                                                                                                                                                                                                                                                                                                                   aminoacyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          plasmid;
                                                                                                                                                                                                                                                                                                                                                                                                                                    acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-4 (1-103) x ABZ69799 (1-3305)
The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-tRNA with at least one unnatural amino acid in the translation system and the O-tRNA recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the Aspl2TAG mutant of chloramphenicol acetyltransferase (CAT), the Tyr163TAG mutant of mouse
                                                                                                                                                                                                                     Schultz
Meggers
                                                                                                                                                                                                                                                                                                                                                                                                                             DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS; orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase; diosynthesis; p-aminophenylalanine; pAF.
                                                                                                                                                      Composition useful for producing | has translation system comprising
                                                                                                                    Example 4;
                                                                                                                                          aminoacyl tRNA synthetase.
                                                                                                                                                                                              WPI; 2003-120430/11.
                                                                                                                                                                                                                                                                                     19-APR-2001; 2001US-0285030P
06-FEB-2002; 2002US-0355514P
                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABZ69798 standard; DNA; 12391 BP
                                                                                                                                                                                                                                                            (SCRI ) SCRIPPS RES INST.
                                                                                                                                                                                                                                                                                                                          19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                    31-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                             WO200285923-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Plasmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABZ69798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -
                                                                                                                                                                                                                      ۳, ۳
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             plasc-papabc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGACCCTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGACCGAGCAGAACGAGCTGCAGGTTGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetThrGluGlnAsnGluLeuGln----ArgLeuArgAlaGluLeuAspAlaLeuAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aGluAspArgArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 llleIleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCCGCTACGCCGACCACGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aAlaArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGAGGACCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAl
                                                                                                                  Page 124-127; 188pp; English.
                                                                                                                                                                                                                     Wang I
Mehl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                              J L,
RA,
                                                                                                                                                                                                                                  Anderson
                                                                                                                                                                                                                     nderson JC,
Pastrnak M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  103
                                                                                                                                                      protein com
g orthogonal
                                                                                                                                                                                                                      Chin JWK,
Santoro
                                                                                                                                                        comprising unnatural amino 
onal tRNA and orthogonal
                                                                                                                                                                                                                      w.
                                                                                                                                                                                                                                  Liu
                                                                                                                                                                                                                      Zhang
                                                                                                                                                                                                                                  DR,
                                                                                                                                                                                                                     Magliery TJ;
{ Z;
                                                                                                                                                                                                                                                                                                                                                                                                                                          ds;
                                                                                                                                                                                                                                                                                                                                                                                                                                            plasmid;
                                                                                                                                                                     acid,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3049
```

```
RESULT 5
AAT59552
ID AAT5
XX AAT5
AC AAT5
XX Stre
XX Stre
XX Stre
XX DAP6
XX Stre
XX DAP6
XX Stre
XX DAP6
XX Stre
XX W DAP6
XX W DAP6
XX WO96

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity: Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-4 (1-103) x ABZ69798 (1-12391)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse dihydrofolate reductase comprising CHOOH His6tag. The unnatural amino acid is provided exogenously. The translation system is a cell and the unnatural amino acid is biosynthesised by the cell. The present sequence represents a plasmid for use in the biosynthesis of p-aminophenylalanine
                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptogramin B; antibiotic; biosynthesis; pristinamycin; virginiamycin; DMPAPA precursor; 4-dimethylamino-L-phenylalanine; papA; papM; papB; papC; isomerisation; aromatisation; N-methyltransferase; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 12391
                                                     08-JUL-1994;
                                                                                                      04-JUL-1995;
                                                                                                                                                      25-JAN-1996.
                                                                                                                                                                                                            WO9601901-A1
                                                                                                                                                                                                                                                                                                             mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                         Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAT58552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAT58552 standard; cDNA; 387 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         represents a
(pAF) in vivo
     (RHON )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2055 ATGACCGAGCAGAACGAGCTGCAGGTTGCGGCTGCGCGCGGAGCTCGACGCCCTCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2352 GGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MetThrGluGlnAsnGluLeuGln----ArgLeuArgAlaGluLeuAspAlaLeuAspGl
     RHONE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    aAlaArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aGlu 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGC---CCGTCATGTACTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCCGCTACGCCGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACGCTTCTGGACACGGTGCGGCGCCCCCATCGACCTCGGTGTCCGCATCGCGCGGTACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YThrLeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLy
                                                                                                                                                                                                                                                                                                                                                                                         pristinaespiralis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pristinaespiralis papB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
     POULENC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     вP;
                                                     94FR-00008478.
                                                                                                   95WO-FR000889
                                                                                                                                                                                                                                                                          /*tag=
                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                             /product= "PapB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 439.00
94.12%
94.12%
85.41%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7.79e-49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2830 A; 3588
     RORER SA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3346 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12391
96
0
3
3
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19
```

```
The papA and papM genes of S.pristinaespiralis are involved in the biosynthesis of 4-dimethylamino-L-phenylalamine (DMPAPA), a precursor for pristinamycin IA. The region between these two genes was sequenced and two open reading frames were identified. The first (papC) was on the complementary strand and decodes to an amino acid sequence with homology to the region of E.coli TyrA which has been implicated in aromatisation reactions. The PapC gene product is likely to be involved in a similar aromatisation of 4-deoxy 4-amino prephenate to give 4-amino phenylpyruvate during DMPAPA synthesis. The second open reading frame (papB) could be decoded to give a product with homology to the region of TyrA which has chorismate mutase activity. The papB gene product is likely to catalyse the isomerisation of 4-deoxy 4-amino chorismate to 4-deoxy 4-aminoprephenate acid. Disruption of the papB and papC genes can be used to produce strains of S.pristinaespiralis which are unable to produce the antibiotic pristinamycin I but which may be able to produce new, modified forms of it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Blanc V,
Barriere
     Sequence 387
                                                                                                                                                                                                                                                                                                                                                                                                             New streptogramin B derivs. useful as antibiotics - produced by a mutants of Streptomyces having altered genes for streptogramin B
                                                                                                                                                                                                                                                                                                                                                        Claim 18; Page 106-107; 146pp; French.
                                                                                                                                                                                                                                                                                                                                                                                            biosynthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1996-097631/10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Thibaut D, E
J, Debussche
       B₽;
       50
       A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bamas-Jacques
e L, Famechon
       187
       Ç;
       110
,
G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ÞΖ
       40
       Ħ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Blanche F, Crouzet J;
Paris J, Dutruc-Rosset
       0
       ä
       0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>ن</u>
                                                                                                                                                                                                                                                                                                    tor
```

Ş Best Local S Query Match: US-10-089-514-4 (1-103) x AATS8552 (1-387) Percent Similarity: No.: Similarity: 7 1.03e-25 256.00 71.08% 61.45% 49.81% Length:
Matches:
Conservative: Gaps: Mismatches: Indels: 387 51 .8 24 0

Alignment Scores:

```
AAT59268
ID AAT5
XX
AC AAT5
XX
DT 02-P
XX
DE Stre
XX
Stre
                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                  밁
                                                                                                                                                                                          S
                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                     RESULT
                                                                                                            AAT59268 standard;
                                                       02-APR-1997
                                                                                 AAT59268;
                                                                                                                                     σ
                                                                                                                                                                  304
                                                                                                                                                                                                                      244
                                                                                                                                                                                                                                                                         184 ATGCAGCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCGCCGCCGACCGCCAC
                                                                                                                                                                                                                                                                                                                               124 ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                                                                                                                                                                                                                                                67
                                                                                                                                                                                                                                                                                                      47
                                                                                                                                                                                          87 ValGluAsp
                                                                                                                                                                                                                                                                                                                                                                                     64
                                                                                                                                                                                                                                                                                                                                                        27 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet
                                                                                                                                                                                                                                                                                                MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                                                  CTCGAGGAC
                                                                                                                                                                                                                      GGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCTGCCGC
                                                                                                                                                                                                                                       GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg
                                                                                                                                                                                                                                                                                                                                                                                     CTCGACGCGCTGCGCCCCTGGACGCCGCGGACGCCCTGCTGGACGCCGTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                            LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                      (first entry)
                                                                                                            cDNA; 2888
                                                                                                                                                                312
                                                                                                            ВP
                                                                                                                                                                                                                      303
                                                                                                                                                                                                                                                86
                                                                                                                                                                                                                                                                         243
                                                                                                                                                                                                                                                                                                      66
                                                                                                                                                                                                                                                                                                                                 183
                                                                                                                                                                                                                                                                                                                                                          46
                                                                                                                                                                                                                                                                                                                                                                                     123
```

Streptogramin B; antibiotic; biosynthesis; pristinamycin; virginiamycin;

pristinaespiralis papA and papM intergenic region

Streptomyces

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                    The papA and papM genes of S.pristinaespiralis are involved in the biosynthesis of 4-dimethylamino-L-phenylalanine (DWPAPA), a precursor for pristinamycin IA. The region between these two genes was sequenced and two open reading frames were identified. The first (papC) was on the complementary strand and decodes to an amino acid sequence with homology to the region of E.coli TyrA which has been implicated in aromatisation reactions. The PapC gene product is likely to be involved in a similar aromatisation of 4-deoxy 4-amino prephenate to give 4-amino phenylpyruvate during DWPAPA synthesis. The second open reading frame (papB) could be decoded to give a product with homology to the region of TyrA which has chorismate mutase activity. The PapB gene product is likely to catalyse the isomerisation of 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 4-amino chorismate to 4-deoxy 
                                                                                                                                                                                                                                                                                                                     deoxy 4-aminoprephenate. Disruption of the papB and papC genes can used to produce strains of S.pristinaespiralis which are unable to produce the antiblotic pristinamycin I but which may be able to pronew, modified forms of it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              papC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New streptogramin B derivs. useful as antibiotics - produced by mutants of Streptomyces having altered genes for streptogramin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-JUL-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9601901-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DMPAPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1996-097631/10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A precursor; 4-dimethylamino-L-phenylalanine; papA; papM; papB; isomerisation; aromatisation; N-methyltransferase; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW11582, AAW11583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ġ,
                                                                                                                                                                                                                                                              2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Thibaut D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Page 102-104; 146pp; French
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Debussche L,
                                                                                                                                                                                                                                                              BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POULENC RORER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95WO-FR000889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94FR-00008478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               open reading fra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       product= "PapM"
note= "N-terminal coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           product= "PapA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          product= "PapB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              product= "PapC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note= "C-terminal coding
                                                                                                                                                                                                                                                              390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      259. .2888
                                1.63e-24
256.00
71.08%
61.45%
49.81%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             reading frame"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bamas-Jacques
e L, Famechon
                                                                                                                                                                                                                                                              A; 1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                frame"
                                                                                                                                                                                                                                                          ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .1836)
Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                              897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ÞΖ
                                                                                                                                                                                                                                                              ဂ္
                                                                                                                                                                                                                                                              282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Blanche F,
Paris J, |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           region only, i.e.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          region only, i.e.
                                                                                                                                                                                                                                                              H
                                                                                                                                                                                                                                                              0
      2888
51
8
24
0
                                                                                                                                                                                                                                                              Ч; о
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dutruc-Rosset
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Crouzet J;
                                                                                                                                                                                                                                                              Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              עם
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 മ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         in B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ດ
                                                                                                                                                                                                                                                                                                                                                  produce
```

US-10-089-514-4 (1-103) x AAT59268 (1-2888)

```
RESULT 7
ACF71772
    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
The invention relates to the isolation of genes and their encoded proteins from Photorhabdus luminescens. The isolated sequences are sources of probes and primers for detecting the genome of P. luminescens and related species; to study polymorphisms; for gene analysis and for detection/amplification of the genes. Antibodies (Ab) raised against the polypeptides encoded by the genes are used for detection/identification of P. luminescens, e.g. in foods. The genes, proteins, Ab and cells that carry a gene-containing vector are used to select compounds that modulate, regulate, induce or inhibit expression of the genes in plants, animals or microorganisms other than P. luminescens and are able to alter response or sensitivity to toxins and antibiotics produced by P. luminescens. Cells transformed to express the genes are useful for recombinant production of the proteins, particularly toxins and antibiotics start and fungicides. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Antibacterial; fungicide; insecticide; polymorphism; genetic analysis; detection; food; gene expression; plant; animal; microorganism; toxin; antibiotic; biopesticide; virulence factor; disease model; plague;
                                                                                                                                                                                                                                                                Genomic sequence of Photorhabdus luminescens useful e.g. as therapeutic antimicrobials and
                                                                                                                                                                                                                                                                                                                                                          Duchaud E,
                                                                                                                                                                                                                                                                                                                                                                                                                                         07-FEB-2001; 2001FR-00001659
                                                                                                                                                                                                                                   Claim 2; SEQ ID NO 10239; 1205pp; French.
                                                                                                                                                                                                                                                                                                                WPI; 2003-148459/14
                                                                                                                                                                                                                                                                                                                                             Buchrieser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-FEB-2002; 2002WO-IB003040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-NOV-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200294867-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACF71772;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACF71772 standard; DNA; 360
                                                                                                                                                                                                                                                                                                                                                                                                         (INSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Photorhabdus luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               whooping cough;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Photorhabdus luminescens nucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                            CNRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7
                                                                                                                                                                                                                                                                                                                                                                                          INST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCGAGGAC 2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetGlnProGlyArqValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCTGCCGC
                                                                                                                                                                                                                                                                                                                                             Ç
                                                                                                                                                                                                                                                                                                                                                             Taourit S,
                                                                                                                                                                                                                                                                                                                                                                                          PASTEUR.
CENT NAT RECH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene; ds.
                                                                                                                                                                                                                                                                                                                                                             Glaser
                                                                                                                                                                                                                                                                                                                                                                                            SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP
                                                                                                                                                                                                                                                                                                                                                             ָי
                                                                                                                                                                                                                                                                                                                                                          Frangeul L,
                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                and encoded polypeptides,
d agricultural pesticides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            #10239
                                                                                                                                                                                                                                                                                                                                                            Kunst F,
                                                                                                                                                                                                                                                                                                                                                             Danchin
                                                                                                                                                                                                                                                                                                                                                             A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26
```

```
ACEGTAT

ACFGTAT

WP Sequence s
WP Sequence s
WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGTAT

WP ACFGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-4 (1-103)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence split
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genes, proteins, vectors containing the genes and Ab are also useful therapeutically (to treat microbial infection by bacteria or fungi that are sensitive to P. luminescens-encoded toxins or antibiotics) and as biopesticides. Other uses of the genes and the proteins are as virulence factors and for identifying targets of human diseases for which P. luminescens is a model (particularly plague and whooping cough). This sequence represents one of the isolated P. luminescens genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
ACF67367 00

ACF67367 01

ACF67367 02

ACF67367 05

ACF67367 06

ACF67367 06

ACF67367 00

ACF67367 11

ACF67367 11

ACF67367 11

ACF67367 11

ACF67367 11

ACF67367 12

ACF67367 12

ACF67367 12

ACF67367 19

ACF67367 19

ACF67367 19

ACF67367 19

ACF67367 19

ACF67367 19

ACF67367 22

ACF67367 23

ACF67367 23

ACF67367 23

ACF67367 25

ACF67367 25

ACF67367 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATAAATCAACCGATTTTGGGTTACGGCCTGAATATACTGAATCAATATTTCAACTGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTGAAGAGACTTGCCGTCGAGAAGAA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATAAATAAACAGGAAATATTACAACCTTACAGGGAATCTTTGGATGTTATTAATATGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGCAGGATATTCCGATGATGCAGCCACAACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTTTGGCACTGCTTTCTGAACGTATGAAAGTTTGTATGAAAATCGCTGAGGTAAAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of 57)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BP; 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of
, 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            x ACF71772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.9e-07
120.00
55.06%
28.09%
23.35%
   100001
300001
400001
600001
700001
700001
1000001
11000001
11000001
11000001
11000001
11000001
11000001
11000001
11000001
11000001
11000001
11000001
11000001
11000001
12000001
12000001
22000001
22000001
224000001
226000001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; 55 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Begin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACF67367
   710000
8110000
910000
11110000
1210000
1210000
1310000
1410000
1510000
1510000
1610000
1710000
1810000
2110000
2210000
2310000
2410000
25110000
25110000
25110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (1-360)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79
                                                                                                                                                                                                                                                                                                                                                                                                    110000
210000
310000
410000
510000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                base 4900001 (Photorhabdus luminescens
US ACF67367 Accession Acf67367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ť; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATTACCTCGTTATTGAATATGTTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ü,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
25
24
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nucleot
                  RESULT 9
ACR65387 1
ACR65387 1
Continuation (2 of WP Sequence split i MP ACR65387 0 MP ACR65387 3 MP ACR65387 5 MP ACR65387 5 MP ACR65387 5 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR65387 6 MP ACR6538 6 MP ACR6538 6 MP ACR6538 6 MP ACR6538 6 MP ACR6538 6 MP ACR6538 6 MP ACR6538 6 MP ACR653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
DB:
                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-4 (1-103)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     No.:
                Fragment Name
ACF65387 1
ACF65387 2
ACF65387 2
ACF65387 3
ACF65387 4
ACF65387 5
ACF65387 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACF67367 29
ACF67367 30
ACF67367 31
ACF67367 32
ACF67367 33
ACF67367 34
ACF67367 37
ACF67367 39
ACF67367 40
ACF67367 42
ACF67367 42
ACF67367 44
ACF67367 45
ACF67367 45
ACF67367 45
ACF67367 47
ACF67367 48
ACF67367 49
ACF67367 55
ACF67367 55
ACF67367 55
ACF67367 55
ACF67367 55
ACF67367 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     74070 ATAAATAAACÁGGAAATATTACÁÁCCTTACAGGGAATCTTTGGÁTGTTATTAATATGCAG
                                                                                                                                                                                                                                                         74310
                                                                                                                                                                                                                                                                                                                                 74250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              74130
                                                                                                                                                                                                                                                                                                                                                                                                        74190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scores:
                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                          41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                 GATAAATCAACCGATTTTGGGTTACGGCCTGAATATACTGAATCAATATTTCAACTGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                              GGGCAGGATATTCCGATGATGCAGCCACAACGTATTACCTCGTTATTGAATATGTTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTTTGGCACTGCTTTCTGAACGTATGAAAGTTTGTATGAAAATCGCTGAGGTAAAAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                                                         ATTGAAGAGACTTGCCGTCGAGAAGAA
                                                                                                                                                                                                                                                                                                                                                     ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                                                                                                                                                           ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                  of
                                                                                                                                                                   into
                                                                                                                                                                                  2
                                                                                                                                                                     o of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.00125
120.00
55.06%
28.09%
23.35%
                                                                                                                                           f ACF65387 from 1
7 fragments LOCU
Begin End
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     x ACF67367_49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29000001
3000001
31000001
32000001
32000001
33000001
34000001
34000001
34000001
34000001
34000001
44000001
44000001
44000001
44000001
44000001
44000001
550000001
550000001
550000001
                      100001
200001
300001
400001
500001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3010000
3110000
3110000
3210000
3310000
3410000
3610000
3610000
3710000
3710000
4110000
4210000
4210000
4210000
4210000
4210000
4210000
4210000
4210000
5210000
5210000
5210000
5210000
5210000
5210000
5210000
5210000
5210000
5210000
5210000
5210000
5210000
                    End
110000
210000
310000
410000
510000
610000
                                                                                                                                                                 LOCUS ACF65387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (1-110000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                         74336
                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                 (Photorhabdus luminescens Accession Acf65387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0 0 4 2 2 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     110000
```

74249

74309

nucleotide

60 74189 40

20

```
RESULT 10

ANV21209 12

ANV21209 12

Continuation (13 of 17

WP Sequence split into
WP Fragment Name
WP ANV21209 00

WP ANV21209 02

WP ANV21209 03

WP ANV21209 04

WP ANV21209 06

WP ANV21209 06

WP ANV21209 07

WP ANV21209 09

WP ANV21209 09

WP ANV21209 10

WP ANV21209 11

WP ANV21209 11

WP ANV21209 12

WP ANV21209 12

WP ANV21209 13

WP ANV21209 14

WP ANV21209 14

WP ANV21209 15

WP ANV21209 16
                                   망
                                                       Ś
                                                                                 문
                                                                                                    Ś
                                                                                                                                                               Best Local Similarity:
Query Match:
                                                                                                                                                                                               Alignment Scores:
Pred. No.:
Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
DB:
            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-4 (1-103) x ACF65387_1 (1-110000)
                                                                                                                              US-10-089-514-4 (1-103)
                                                                                                                                                                                      Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Мо
::
                                                                                 38358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41
            41
                                                          21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21
                                                                              MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr 20
:::||| :::||| :::|||
GTTACAATGATAGAGAAACTTGCTGAAATTAGGAAGAAGATTGATGAGATTGACAATAAG 38417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            **:|||
ATTTTGGCACTGCTTTCTGAACGTATGAAAGTTTGTATGAAAATCGCTGAGGTAAAAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATAAATAAACAGGAAATATTACAACCTTACAGGGAATCTTTGGATGTTATTAATATGCAG 13643
ArgHisGlyValProMetGlnProGlyArgValSerLeuValLysAspArgAlaAla 60
                                   ATATTAAAGCTAATTGCTGAAAGAAATAGTTTAGCTAAGGATGTAGCTGAGATAAAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTGAAGAGACTTGCCGTCGAGAAGAA 13850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGCAGGATATTCCGATGATGCAGCCACAACGTATTACCTCGTTATTGAATATGTTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                       LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATAAATCAACCGATTTTGGGTTACGGCCTGAATATACTGAATCAATATTTCAACTGGTT 13823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IleThrGluMetCysArgValGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of 17)
                                                                                                                                                                                                                                                                                                                                                                                                                                                            into
                                                                                                                                                                                                                                                                                                                                                                                                                                                       of
17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.00125
120.00
55.06%
28.09%
23.35%
                                                                                                                                                     0.0158
112.00
53.09%
24.69%
21.79%
                                                                                                                             x AAV21209_12
                                                                                                                                                                                                                                               800001
900001
1000001
1100001
1200001
1300001
1400001
1500001
                                                                                                                                                                                                                                                                                                                                                     100001
200001
300001
400001
500001
700001
                                                                                                                                                                                                                                                                                                                                                                                                                                              Begin
                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAV21209 from base 1200001 (Methanococcus fragments LOCUS AAV21209 Accession Aav2120
                                                                                                                                                                                                                                                                              110000
210000
310000
410000
610000
710000
810000
810000
1110000
1110000
1210000
1310000
                                                                                                                                                                                                                                               1510000
1610000
1664976
                                                                                                                                                                                                                                                                                                                                                                                                                                                  End
                                                                                                                             (1-110000)
                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative: Mismatches: Indels: Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89
                                                                                                                                                110000
20
23
38
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              110000
25
24
40
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       jannaschii circular
                                   38477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13703
                                                                                         RESULT 1:
ADF00853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 11
ADM27081 16/c
Continuation (
Continuation)
WP Sequence sp
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
ADM2708
  SEXEXEX
                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                             밁
                                                                                                                                                  S
                                                                                                                                                                         밁
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence split
                                   12-FEB-2004
                                                         ADF00853;
                                                                                ADF00853
                                                                                                                                                                                                                                                                                                                                                                                                                                                No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fragment Name ADM27081 00 ADM27081 01 ADM27081 02 ADM27081 03 ADM27081 05 ADM27081 07 ADM27081 08 ADM27081 09 ADM27081 10 ADM27081 10 ADM27081 11 ADM27081 11 ADM27081 12 ADM27081 13 ADM27081 13 ADM27081 13 ADM27081 14 ADM27081 15 ADM27081 15 ADM27081 16
                                                                                                                                                                         17729
                                                                                                                                                                                                                        17789
                                                                                                                                                                                                                                                                      17849
                                                                                                                                                                                                                                                                                                                   17909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38598
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scores:
                                                                                                                                                    85
                                                                                                                                                                                                 65
                                                                                                                                                                                                                                               45
                                                                                                                                                                                                                                                                                          25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (17
                                                                                                                                                  CysArgVal 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81
```

```
US-10-089-514-4 (1-103) x ADM27081_16
Bacterial polynucleotide #1138
                                                                                                                                                17681 CTAAAGGTT 17673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACAGAGGGGCTGGATCCGGCG-
                                                                                                                                                                                                                                     AspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMet
                                                                                                                                                                                                                                                                    CCACTGACGGACGAGGGGGGGGGAGAGGAGGGTGGAGGAGGGTTTAAA
                                                                                                                                                                                                                                                                                            ProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAla
                                                                                                                                                                                                                                                                                                                              GTCATCGAGCGCCTGAAGGTGGCGCGGGAAATAGGGCGCGTAAAGGCTCAGGAGGGGTTA
                                                                                                                                                                                                                                                                                                                                                    ValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyVal
                                                                                                                                                                                                                                                                                                                                                                                     AsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThr 24
||| |||::: |||| |||:::||| :::|||
AACGTGCTCGAGGAGCTCAGGCGCGAAATAGACCGCATCGATGAGTGTTTGCTGGACGCA 17850
                                                                                       standard; DNA; 1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAACTTTGTAAAGAACATAACGTTGATGAAAATATTGGCATTAAAATATTTCAAATACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspVallle 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of 17) of ADM27081
                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.0333
109.00
53.01%
30.12%
21.21%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       700001
800001
900001
1000001
1100001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1400001
1500001
1600001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1200001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100001
200001
300001
400001
500001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Begin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       910000
1010000
1110000
1210000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1510000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1410000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               End
110000
210000
310000
410000
510000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   710000
810000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                (1-94968)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matchés:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     base 1600001 (Hyperthermophile Methanopyrus ka
US ADM27081 Accession Adm27081
                                                                                                                                                                                                           CTCGCGGACATCGTGCTGGCTTCTATC 17682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94968
25
19
35
4
                                                                                                                                                                                                                                      84
                                                                                                                                                                                                                                                                                                 64
                                                                                                                                                                                                                                                                                                                              17790
                                                                                                                                                                                                                                                                                                                                                          44
                                                                                                                                                                                                                                                                     17730
```

```
Best I
Query
DB:
 RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-4 (1-103) x ADF00853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   polypeptides, methods for producing the polypeptides, a method of generating vaccines for immunising an individual against P. mirabilis, a method for evaluating a compound for the ability to bind a P. mirabilis polypeptide and a method for screening test compounds for anti-bacterial activity. The polypeptides and polynucleotides are useful as molecular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       targets for diagnosing, preventing and treating pathological conditions resulting from bacterial infection, as respents for diagnosis of bacterial diseases, as components of antibacterial vaccines, as targets
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New Proteus mirabilis polypeptides and polynucleotides, useful reagents for diagnosis of bacterial disease, as components of antibacterial vaccines, as targets for antibacterial drugs, or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1125 BP; 352 A; 180 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to new Proteus mirabilis polypeptides and polynuclectides. The invention also relates to antibodies against
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; SEQ ID NO 1138; 870pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 biocontrol agents for plants.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               05-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12-AUG-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US6605709-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Proteus mirabilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     immunostimulant; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Proteus mirabilis infection; bacterial infection; antibacterial;
                                                                                                                                                                                                                                                                                                                                                                                                                                          Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (GENO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 antibacterial drugs or as bio-control agents for plants.
sence represents a Proteus mirabilis polynucleotide of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2003-895291/82
                                    211
                                                                                                                                                                            130
                                                                     86
                                                                                                                                        66
                                                                                                                                                                                                             46
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity:
                                                                                                                                                                                                                                               70
                                                                                                                                                                                                                                                                                                                    10
                                                                                                                                                                                                                                                                                  26
                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENOME THERAPEUTICS CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADF05025
                                                                                                                                      HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys
                                                                                                                                                                                                           MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                                                                                                                                                                              ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                 GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                   ArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp 101
                                                                                                       ATGGGTATTTCTGCTGATTTA-
                                                                                                                                                                          ATCTATGCACCAGATAGAGAAGCCGCAATGCTTGCTTCTCGACGTAATGAAGCAGAAAAA
                                                                                                                                                                                                                                               GCCAAAAGAATGCAATTGGTAGCAGAAGTGGGAGAAGTTAAAAATCGCCACGGGTTACCT
                                                                                                                                                                                                                                                                                                                  -ATTGAAGATGTTTTACGTCGAGTAATGAGAGAGTCATATAGCAAAGAAAAT 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-00543681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0128706P
                                                                                                                                                                                                                                                                                                                                                                                                                      0.000197
106.00
46.94%
27.55%
20.62%
                                                                                                                                                                                                                                                                                                                                                                                       (1-1125)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              250 G; 343 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                        1125
27
19
36
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of the invention
                                                                                                                                                                          189
                                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                             65
                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                  45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                 밁
                                                                                                S
                                                                                                                                        밁
                                                                                                                                                                   Ś
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACH98708
                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-4 (1-103)
                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention describes a new isolated nucleic acid encoding a Klebsiella pneumoniae polypeptide. Also described are: a recombinant expression vector comprising the nucleic acid, operably linked to a transcription regulatory element; and a cell comprising the recombinant expression vector. The nucleic acid is useful for preparing a vaccine composition against Klebsiella pneumoniae. This sequence encodes a Klebsiella pneumoniae of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New nucleic acid encoding a Klebsiella pneumoniae polypeptide, preparing a vaccine composition against Klebsiella pneumoniae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Disclosure; SEQ ID NO 4503; 932pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Breton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-JAN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26-AUG-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Klebsiella pneumoniae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Recombinant
Klebsiella J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Klebsiella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACH98708;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACH98708 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US6610836-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GENO-) GENOME THERAPEUTICS CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2003-895346/82
                                                                                                                                                                                                                                                                                  145
385
                                                                                                                                        265
                                                                                                                                                                                                             205
                              81
                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity:
                                                                                                                                                                       41 ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                            21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                                                                 _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AB065157
                                                                                                                                                                                                                                                                                                               MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr 20
                              IleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeu
                                                                   ACTATCGGCAAGCGCCATAATCTGGATGCGCACTATATCACCCGGCCTGTTCCAGCTGATT
                                                                                                   ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                        GCCTCCCATCGTCCGGTGCGTGATATTGACCGCGAACGCGATCTGCTGGAGCGCCTGATG
                                                                                                                                                                                                             CTGCTTGCTCTGCTGGCGGAGCGCCGCGGACTGGCTTGAGGTTGGAAAAGCCAAACTG
                                                                                                                                                                                                                                                                                ATGACCGAGGAAAACCCCATTACTGGCGCTGCGCGATAAGATAAGCGCCCCTGGACGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pneumoniae protein; antibacterial; Vaccine; gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pneumoniae polynucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             expression vector; transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-00489039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0117747P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          290 A; 388
                                                                                                                                                                                                                                                                                                                                                                                      48.45%
29.90%
20.43%
11
                                                                                                                                                                                                                                                                                                                                                   x ACH98708
                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.000332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ВP
                                                                                                                                                                                                                                                                                                                                                   (1-1305)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ତ୍ର
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            seqid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ŧ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             regulatory element;
; Vaccine; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ģ
                                                                                                                                                                                                                                                                                                                                                                                    1305
29
18
44
1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0 Other;
                                97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          useful
```

for

밁 8 밁 Ś 밁 Ś 밁 Ś 밁 Ś

60

384 80 324 40

204

```
RESULT 14
AAD50752
ID AAD50
    Query Match:
DB:
                              Percent Similarity:
Best Local Similarity:
                                                                           Alignment Scores: Pred. No.:
                                                                                                                      molecule encoding an enzyme with prephenate dehydrogenase (tyrk) or chorismate mutase activities or a tyrk from Erwinia herbicola or Bscherichia coli bifunctional prephenate dehydrogenase. Sequences of the invention are useful for producing a plant such as canola, maize, krabidopsis, Brassica campestris, B.napus, soybean, crambe, mustard, castor bean, peanut, sesame, cottonseed, linseed, safflower, oil palm, clast and sunflower having increased tocopherol levels, especially alphaor or gamma-tocopherol or tocotrienol relative to a plant with a similar genetic background but lacking the exogenous nucleic acid molecule. They are also
                                                                                                                                                                                                                                                                                                                                                        The present invention relates to novel nucleic acid molecules encoding enzymes involved in tocopherol biosymthesis. Polynucleotides of the invention comprise a promoter region functioning in a plant cell to cause production of an mRNA molecule linked to a heterologous nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 biosynthesis useful for enhancing or altering plants such as canola, maize, soybean, crambe, peanut, sesame, or cottonseed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Novel nucleic acid molecule encoding enzymes involved in tocopherol biosynthesis useful for enhancing or altering tocopherol production plants such as canola, maize, soybean, crambe, mustard, castor bean,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cbs
                                                                                                                                                                             useful for producing plant expressing homogentesic acid and plastoquinones. The present sequence is Erwinia herbicola bifunctional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Tocopherol biosynthesis; prephenate dehydrogenase; chorismate mutase; tyrA; transgenic; transgenic plant; homogentesic acid; plastoquinone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAD50752;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAD50752 standard; DNA; 1122
                                                                                                                      Sequence 1122
                                                                                                                                                               prephenate dehydrogenase DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (MONS ) MONSANTO TECHNOLOGY LLC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             09-MAY-2001; 2001US-0289527P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-MAY-2002; 2002WO-US013898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200289561-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pantoea agglomerans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                02-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-OCT-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2003-058889/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                  5; Page 199-200; 206pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                herbicola bifunctional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAE32997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (revised)
(first entry)
                                                                                                                      BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product= "Bifunctional prephenate dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag=
0.000698
102.00
50.00%
27.55%
19.84%
                                                                                                                      241 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .1122
                                                                                                                      276
                                                                                                                      Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                               (Updated on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              prephenate dehydrogenase
                                                                                                                      349
                             Length:
Matches:
Conservative:
Mismatches:
   Indels:
Gaps:
                                                                                                                      ଦ
                                                                                                                      256
                                                                                                                                                               27-OCT-2003
                                                                                                                      ;
                                                                                                                      0
                                                                                                                      Ç,
 1122
27
22
33
16
                                                                                                                      0 Other;
                                                                                                                                                               to standardise
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            in
                                                                                                                                                               S
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                  Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-4 (1-103) x AAD50752 (1-1122)
                                                                                             The invention relates to a novel substantially purified nucleic action molecule encoding a phytol kinase. The nucleic acid molecules and polypeptides of the invention may be useful in mediating tocopherol biosynthesis and in producing plants with increased drought resistant the current sequence is that of the Pantoea agglomerans prephenate
                                                            Sequence 1122
                                                                                                                                                                                             New phytol kinase polynucleotides, useful biosynthesis and in producing plants with
                                                                                                                                                                                                                                                            Hirschberg
Venkatesh '
                                                                                                                                                                                                                                                                                                                                     05-AUG-2002; 2002US-0400689P.
05-AUG-2003; 2003US-00634548.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        prephenate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pantoea agglomerans prephenate dehydrogenase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-MAY-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADJ98178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADJ98178 standard; DNA;
                         No.:
                                                                                                                                                                        Claim
                                                                                                                                                                                                                                    WPI; 2004-157125/15
                                                                                                                                                                                                                                                                                     Norris
                                                                                                                                                                                                                                                                                                                                                                         05-AUG-2003; 2003WO-US025276
                                                                                                                                                                                                                                                                                                                                                                                                  12-FEB-2004.
                                                                                                                                                                                                                                                                                                                                                                                                                       WO2004013312-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                Pantoea agglomerans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    phytol kinase;
                                                                                                                                                                                                                                                                                                             (MONS ) MONSANTO TECHNOLOGY LLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      211 ---ATTGAGGATGTGCTGCGTCGCGTGATGCGGGAATCCTATACCAGCGAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      130 ATCTATGTGCCTGAGCGTGAGGCGTCGATGCTGGCTTCGCGTCGCAAAGAGGCCGAAGCG
                                                                                                                                                                     23; SEQ ID NO 16; 189pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66 HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26 ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
                                                                                                                                                                                                                                                                                     SR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCGGCGTACCACCGGATCTG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAACTGACCGCGTTACGCGATCAAATTGACAGTGTAGATAAAGCGCTGCTGGATCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                                                                                                                                                                            dehydrogenase;
                                                                                                                                                                                                                                                                                   Lincoln K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first
                                                             BP;
                                                                                    (tyrA)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tocopherol biosynthesis;
                                                                                                                                                                                                                                                                         Karunanandaa
                                                             241 A; 276 C;
0.000698
102.00
50.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                     DNA of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1122
                                                                                                                                                                                                                                                                                   Abad MS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tyrA;
                                                                                                                                                                                                                                                                        ω,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ds.
                                                                                                                                                                                                                                                                        , Eilera R,
Moshiri F,
                                                             349 G;
Length:
Matches:
Conservative:
                                                             256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    plant;
                                                                                                                                                                                             in mediating tocopherol increased drought resis
                                                             H
':
                                                                                                                                                                                                                                                                        Stein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (tyra)
                                                                                                                                                                                                                                                                                     Hartsuyker KK;
                                                            0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    drought
                                                                                                                                                                                                                                                                        'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     resistance;
                                                                                                                                                                                                                                                                         Valentin
                                                                                                             resistance
                                                                                                                                                                                                 resistance.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45
```

Percent Similarity:

Search completed: October Job time : 243.876 secs	Дb	Qy	Db	8	Db	8	Db	γQ	Db	8	US-10-089:	Best Local Similarity: Query Match: DB:
plet 243	211	86	190	66	130	46	70	26	10	σ	514-	Sim
ed: Octob .876 secs	ATTGAG	ArgValGlu	CTCGGCGTA	HisGlyLeu	ATCTATGTG	MetMetGln:	GCTAAGCGA	ArgArgArg	GAACTGACC	GluLeuGln	4 (1-103)	
er 5, 2005, 10:49:05	SATGTGCTGCGTCG	AspLeuVal	CCACCGGATCTG	AspGluSerPheLe	CCTGAGCGTGAGGC	ProGlyArgValSe	CTGGAACTGGTGGC	IleAspLeuGlyVa	GCGTTACGCGATCA	ArgLeuArgAlaGl	US-10-089-514-4 (1-103) x ADJ98178 (1-1122)	27.55% 19.84% 12
0:49:05	CGTGATGCGGGAATC	-MetSerArgGluSe	190 CTCGGCGTACCACCGGATCTG	uValAsnLeuTyrAs	AGGCGTCGATGCTGGCTTC	rLeuValLysAspAr	CGAGGTAGGTGAGGT	lArgIleAlaArgTy	AATTGACAGTGTAGA	uLeuAspAlaLeuAs	-1122)	Mismatches: Indels: Gaps:
	ATTGAGGATGTGCTGCGTCGCGTGATGCGGGAATCCTATACCAGCGAGAAT 261	ArgValGluAspLeuValMetSerArgGluSerLeuThrAlaGluAsp 101		HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys	130 ATCTATGTGCCTGAGCGTGAGGCGTCGATGCTGGCTTCGCGTCGCAAAGAGGCCCGAAGCG 189	MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp 65	70 GCTAAGCGACTGGAACTGGTGGCCGAGGTAGGTGAGGTG	rLysSerArgHisGlyValPro	GAACTGACCGCGTTACGCGATCAAATTGACAGTGTAGATAAAAGCGCTGCTGGATCTGCTG	GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal		33 16 2
			210	85	189	65	129	45	69	25		

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Command line parameters:

-MODEL=frame+ p2n.model -DEV=xlh
-Q=/Ggn2_1/USPTO_gpool_h/US10089514/runat_04102005_105746_8071/app_query.fasta_1.1621
-DB=Issued_patents_NA -QFMT=fastap_-SUFFIX=rri -MINMATCH=0.1 -LOOPCL=0
-LOOPEXT=0 -UNITS=bits -START=1 -END=-1 -MATRIX=biosum62 -TRANS=human40.cdi
-LIST=45 -DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15
-MODE=LOCAL -OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER=US10089514_8CGN 1 116_8xnnat 04102005 105746_8071 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQUERY -NEG_SCORES=0 -MAXT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OM protein - nucleic search, using frame_plus_p2n model
                     იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
      110
110
121
121
                                                                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB DB
   256
256
256
256
256
112
112
106
104.5
104.5
98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xgapop 10.0,
Ygapop 10.0,
Fgapop 6.0,
Delop 6.0,
                                                                                                                                                                                                          Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       October
                                                                                                                                                                                                                                                                                                                                                                                                                                                Issued_Patents_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1202784 segs, 818138359 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-4
   49.8
49.8
49.8
21.8
21.8
20.6
20.6
20.3
119.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MTEQNELQRLRAELDALDGT.....MCRVEDLVMSRESLTAEDRR 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Copyright
                                                                                                                                                                                                                                                                                                                                               /cgn2 6/ptodata/1/ina/5A_COMB.seq:*
/cgn2 6/ptodata/1/ina/5B_COMB.seq:*
/cgn2 6/ptodata/1/ina/5B_COMB.seq:*
/cgn2 6/ptodata/1/ina/6B_COMB.seq:*
/cgn2 6/ptodata/1/ina/backfiles1.seq:*
   3 387 3
3 387 3
3 2888 4
1 2888 4
3 1664976
5 1664976
5 1125 4
1 1305 4
1 1305 4
1 1963 4
1 1563 4
1 1563 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5, 2005, 10:07:08; Search time 56.3672 Seconds (without alignments) 2989.973 Million cell updates
7 3 US-08-765-907A-4

7 4 US-09-987-614A-4

8 3 US-08-765-907A-1

8 4 US-09-987-614A-1

176 4 US-08-916-421B-1

76 4 US-09-692-570-1

77 4 US-09-692-570-1

78 4 US-09-692-570-1

79 4 US-09-254-61A-1138

79 4 US-09-489-039A-4503

70 4 US-09-902-540-179-361

71 4 US-09-489-039A-4572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.6 (c) 1993 - 2005 Compugen
                                                                                                                                                                                                            DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . . . . . .
Sequence 4, Appli
Sequence 1,  Appli
Sequence 1138, Ap
Sequence 2740, Ap
Sequence 2740, Ap
Sequence 361, App
Sequence 361, App
Sequence 4572, Ap
                                                                                                                                                                                                         Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cell updates/sec
                   Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 1
US-08-765-907A-4
                                                                                Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      00000 00 0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         000
                                                                                                                                                                                                          SEQ ID NO 4
```

4 5	44	43		41												29						23									14	
69	69.5		71			•		71.5	•	٠	72	73	73	74	74	74	74	74	74	74	75	75	76	82	8		œ	æ	88.5		90	90
13.4	13.5	٠	•	13.9		٠			13.9		٠	14.2	٠	14.4	14.4	14.4	14.4	14.4	14.4	14.4				16.0		•	٠	17.2	7.	17.2	17.5	17.5
1125	1524	6744	1915	38506	38506	38506	18431	13613	1281	1230	447	5125	921	9839	1611	1581	1101	1086	1041	888	4825	4258	267	1167	1830121	~	1791	1653	960	804	49225	1038
4.	4	4	4	4	4	w	w	ω	w	4	4	4	4	4	4	4	4	4.	4	4	4	ω	4.	4			4	4	4	4	4	4
US-09-902-540-8770	-09-540-236-1	-09-902-540	-09-902-540-7	L	-09-141-908-	US-09-320-878-19	9-221-017B-	US-09-105-537-3	9-105-537	0-105-319	Ψ	US-09-902-540-785	Ψ	US-09-902-540-996	US-09-252-991A-5778	US-09-252-991A-10473	US-09-252-991A-10597	US-09-252-991A-10259	US-09-252-991A-5815	9-252-991A-5	9-949-016-1591	US-07-765-830A-5	9-583	9-543-681A-13	US-09-643-990A-1	US-09-557-884-1	9-252-991A-468	-252-991A-472	-252-991A-4	-09-252-991A-481	-09-902-540-1	US-09-902-540-5637
Œ	Sequence 1471, Ap	e 682,	e 729	æ	e 1,	e 19,	e 109	e 3, Apı	e 19	e 1,	e 93:	e 78	e 78	99	e 57	e 10,	e 10:	e 10	e 58:	58	15	ن	18	13:	e 1	ce 1	e 461	e 47:	e 47	e 48:	Sequence 1269, Ap	Sequence 5637, Ap

ALIGNMENTS

```
Percent Similarity:
Best Local Similarity:
                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                               US-08-765-907A-4
                                                                                                                                                                                                                                                                                                                                                        APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: BAMAS-JACQUES, Nathalie
APPLICANT: BLANCHE, Francis
APPLICANT: COUZET, Joel
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: BEBUSCHE, Laurent
APPLICANT: PAMECHON, Alain
APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 4, Application Patent No. 6352839
                                                                                                                                                                                                                                 TITLE OF INVENTION: Streptogramins And Meti
TITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                          TYPE: DNA ORGANISM: Streptomyces pristinaespiralis
                                                                                                                                                                                                 LENGTH: 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      THIBAUT, Denis
BAMAS-JACQUES, Nathalie
 4.96e-28
256.00
71.08%
61.45%
49.81%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US/08765907A
                  Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                             And Method For Preparing
                                                                      Length:
Matches:
Gaps:
 387
51
8
24
0
```

Ву

```
Ś
                                                             밁
                                                                                          Ś
                                                                                                                          밁
                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ६
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 2
US-09-987-614A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                      US-10-089-514-4 (1-103) x US-09-987-614A-4 (1-387)
                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                  Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                               US-09-987-614A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-089-514-4 (1-103) x US-08-765-907A-4 (1-387)
                                                                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 4, Applic Patent No. 6833382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: BLANC, Veronique APPLICANT: THIBAUT, Denis APPLICANT: BAMAS-JACQUES,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method For Preparing Same
TITLE OF INVENTION: Mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                      LENGTH: 387
TYPE: DNA
ORGANISM: Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               244
                                                           124 ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  304 CTCGAGGAC 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           184
 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       124 ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                              47
                                                                                            27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87 ValGluAsp 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   47 MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet
                                                                                                                          64 CTCGACGCGCTGCGCCCGCCTGGACGCCGCGCACGCCCTGCTGGACGCCGTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   64 CTCGACGCGCTGCGCCCGGCCTGGACGCCGCGGACGCCGTGCTGGACGCCGTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLANCHE, Francis
COUZET, Joel
BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                   MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                               ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/09987614A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg
                                                                                                                                            LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
 ATGCAGCCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCGCTACGCCGCCGACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCTGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGCAGCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCGCTACGCCGCCGACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PARIS, Jean-Marc
DUTRUC-ROSSET, Gilles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Veronique
                                                                                                                                                                                                                                  4.96e-28
256.00
71.08%
61.45%
49.81%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nathalie
                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                     Mismatches: Indels:
                                                                                                                                                                                                                                                                  Conservative:
                                                                                                                                                                                                                   387
51
8
0
0
                                                           183
243
                             66
                                                                                          46
                                                                                                                         123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123
                                                                                                        밁
                                                                                                                                                                    B
                                                                                                                                                                                                 á
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                          RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score:
```

```
FILE REPERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 1
LENGTH: 2888
TYPE: DNA
ORGANISM: Streptomyces pristinaespiralis
US-09-987-614A-1

Sequence 1, Application US/09987614A

; Patent NO. 683382

; GENERAL INFORMATION:

; APPLICANT: BLANC, Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 3
US-08-765-907A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-4 (1-103) x US-08-765-907A-1 (1-2888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-765-907A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence 1, Application US/08765907A
Patent No. 6352839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method For Preparing Same
TITLE OF INVENTION: Mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: BLANC,
                                                                                                                                                                                                                                                                                                    2176
                                                                                                                                                                                                                                                                                                                                                                                                                                                          2116 GGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCTGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2056 ATGCAGCCCCACCGGATCGCCCAGGTCCACGCCAACGCCGCCGCCGACCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1996 ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1936 cricascececriscio de concentración de consecución de consecuc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            304 CTCGAGGAC 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67 GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg
                                                                                                                                                                                                                                                                                                                                                                         87 ValGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87 ValGluAsp 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLANCHE, Francis
COUZET, Joel
BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                CTCGÁGGÁC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     THIBAUT, Denis
BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Veronique
                                                                                                                                                                                                                                                                                                2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8.62e-27
256.00
71.08%
61.45%
49.81%
                                                                                                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2888
51
8
24
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                          2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                303
```

```
გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-916-421B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-4 (1-103) x US-09-987-614A-1 (1-2888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-987-614A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Applicati
Patent No. 6503729
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                   APPLICANT: Bult et al.
TITLE OF INVENTION: Complete Genome
Patent No. 6503729
TITLE OF INVENTION: jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE:
SEQ ID NO 1
                                                            SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                           CURRENT APPLICATION NUMBER: US/08/916,421B CURRENT FILING DATE: 1997-08-22 PRIOR APPLICATION NUMBER: US 60/024,428 PRIOR FILING DATE: 1996-08-22 NUMBER OF SEQ ID NOS: 3 SOFTWARE: Patentin version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: Streptogramins and Method For Preparing Same TITLE OF INVENTION: Mutasynthesis FILE REFERENCE: Streptogramin genes CURRENT APPLICATION NUMBER: US/09/987,614A CURRENT FILING DATE: 2001-11-15 PRIOR APPLICATION NUMBER: US/08/765,907 PRIOR APPLICATION NUMBER: US/08/765,907 PRIOR FILING DATE: 1997-03-20
                                                                                                                                                                                                                                                                                                     FILE REFERENCE: PB275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA ORGANISM: Streptomyces pristinaespiralis
TYPE: DNA
                            LENGTH: 1664976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2176 CTCGAGGAC 2184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1996 ACACGCCTGGACATCTGCCTGCGCATCGGCGAGTACAAGCGCCTCCACCAGGTGCCGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         87 ValGluAsp 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCATCGACCCCGCCTTCCTGCGCACCCTGTACGACACGATCATCACCGAGACCTGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCysArg 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cresacececrececececes en consecuences en conse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/08916421B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PARIS, Jean-Marc
DUTRUC-ROSSET, Gilles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEBUSSCHE, Laurent FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BARRIERE, Jean-Claude
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BLANCHE, Fra
COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          THIBAUT, Denis
BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8.62e-27
256.00
71.08%
61.45%
49.81%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Francis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                    Sequence of the Methanogenic Archaeon, Methanocoo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2888
51
8
24
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Вγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1995
```

```
NAME/KEY: misc feature
LOCATION: (234220) ...(234220)
OTHER INFORMATION: n equals a,
NAME/KEY: misc feature
LOCATION: (234814) ...(234814)
OTHER INFORMATION: n equals a,
NAME/KEY: misc feature
LOCATION: (309398) ...(309398)
OTHER INFORMATION: n equals a,
NAME/KEY: misc feature
LOCATION: (309418) ...(309418)
                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION: (98343). (98343)
OTHER INFORMATION: n equals a
NAME/KEY: misc_feature
LOCATION: (10398). (10398)
OTHER INFORMATION: n equals a
NAME/KEY: misc_feature
                                                       OTHER INFORMATION: n equals NAME/KEY: misc feature LOCATION: (312837)...(312837) OTHER INFORMATION: n equals
                                                                                                                                                                                                                                   NAME/KEY: misc_feature
LOCATION: (234187)...(234187)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                           NAME/KEY: misc feature
LOCATION: (191995)..(191995)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc feature
LOCATION: (191989)..(191989)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc feature LOCATION: (163385)...(163385) OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (98266)..(98266)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc feature
LOCATION: (98120)..(98120)
OTHER INFORMATION: n equals
OTHER INFORMATION: n equals NAME/KEY: misc feature LOCATION: (319226)..(319226)
                                  NAME/KEY: misc_feature
LOCATION: (312993)..(312993)
                                                                                                                                                                                                                                                                         LOCATION: (231980).. (231980)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: (148948)..(148948)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION: (98239)..(98239)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION: (84808)..(84808)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: (28257)..(28258)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: (28222)..(28222)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc
LOCATION: (2822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Methanococcus jannaschii FEATURE:
                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_fe
LOCATION: (98239)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION: (98159)..(98159)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc fe
LOCATION: (98159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_fe
LOCATION: (84812)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (84773)..(84773)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (84808)
                                                                                                                                                                                                                                                                                                   reature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            reature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     teature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .. (84812)
                        a
'
                                                            а
,
                                                                                               ä
                                                                                                                                a
                                                                                                                                                                   a,
                                                                                                                                                                                                     a
                                                                                                                                                                                                                                        ā
                                                                                                                                                                                                                                                                            a,
                                                                                                                                                                                                                                                                                                              gı
V
                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                      a
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                        ŗ
                                                                                                                                                                                                     ۲
                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ĺ
                                                            ŗ
                                                                                             'n
                                                                                                                                ŗ
                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                  ,
                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                      ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŗ
                         ņ
                                                           ú
                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                            ç
                                                                                                                                                                                                                                                                                                                                                                                     ō
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ņ
                                                                                             ú
                                                                                                                                ú
                                                                                                                                                                   ç
                                                                                                                                                                                                                                                                                                             ņ
                                                                                                                                                                                                                                                                                                                                                 ç
                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ů
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ů
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ů
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ú
                         မ္
                                                                                                                                 õ
                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                유
                                                            e
                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                         ő
                                                                                                                                                                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                           မ္ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         압
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  မ္ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                             ω
                                                                                                                                                                   ω.
                                                                                                                                                                                                                                        ω.
                                                                                                                                                                                                                                                                                                              ω.
                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                      ω...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

```
LOCATION: (1313224)...(1313224)
OTHER INFORMATION: n equals a, t
NAME/KEY: misc feature
LOCATION: (1343473)...(1349473)
OTHER INFORMATION: n equals a, t
NAME/KEY: misc feature
                                                                                                                                                               NAME/KEY: misc feature LOCATION: (1130881). (1130881) OTHER INFORMATION: n equals a, t NAME/KEY: misc feature LOCATION: (1310988)...(1310988) OTHER INFORMATION: n equals a, t
     NAME/KEY: misc_feature
LOCATION: (1569020)..(1569020)
                             NAME/KEY: misc feature LOCATION: (1470091)...(1470091) OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                 NAME/KEY: misc feature
LOCATION: (1119881)...(1119881)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                         NAME/KEY: misc feature
LOCATION: (1084830)...(1084830)
OTHER INFORMATION: n equals a,
NAME/KEY: misc feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc feature
LOCATION: (600992)..(600992)
OTHER INFORMATION: n equals
                                                               LOCATION: (1349491)..(134949
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc feature
LOCATION: (855539)..(855539)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (779455)...(779455)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc feature
LOCATION: (657203)..(657203)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: n equals NAME/KEY: misc feature LOCATION: (657081)..(657081) OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc feature
LOCATION: (559241)...(559241)
OTHER INFORMATION: n equals a,
                                                                                                                                                        NAME/KEY: misc
                                                                                                                                                                                                                                                                    LOCATION: (1096846)..(1096846)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                       LOCATION: (871619)..(871619)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION: (713652)..(713652)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: (682442)..(682442)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
LOCATION: (674435)..(674435)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (622708)..(622708)
                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_
                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: n equals
                                                                        (1349491) . . (1349491)
                                                                                                                                                       feature
                                                                                                                                                                                                                                                                                                                                                               feature
                                                                                                                                                                                                                                                                                                                                                                                                                                 reature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    teature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (741684)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (559167)
                                                                 a,
                                                                                                                                                                                                                                                                                                                                                                          a,
                                                                                                                                                                                                                                                                                                                                                                                                           a,
                                                                                                                                                                                                                                                                                                                                                                                                                                            a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a,
                                ļ
                                                                 ŗ
                                                                                                  ,
                                                                                                                                  Ĺ
                                                                                                                                                                    Ĺ
                                                                                                                                                                                                                                     Ĺ
                                                                                                                                                                                                                                                                      Ļ
                                                                                                                                                                                                     Ĺ
                                                                                                                                                                                                                                                                                                        Ţ
                                                                                                                                                                                                                                                                                                                                         ţ
                                                                                                                                                                                                                                                                                                                                                                                                           ,
                                                                                                                                                                                                                                                                                                                                                                                                                                            Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŗ
'n
                                ņ
                                                                ò
                                                                                                 Ç
                                                                                                                                                                   Ç
                                                                                                                                                                                                                                     ō
                                                                                                                                                                                                                                                                      Ç
                                                                                                                                  Ç
                                                                                                                                                                                                   ç
                                                                                                                                                                                                                                                                                                                                         ú
                                                                                                                                                                                                                                                                                                                                                                                                           C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ņ
                                                                                                                                                                                                                                                                                                        ů
                                                                                                                                                                                                                                                                                                                                                                         ů
                                                                                                                                                                                                                                                                                                                                                                                                                                          Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ū
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ū
or
P
                                9
                                                                 õ
                                                                                                  or
                                                                                                                                  or
                                                                                                                                                                    ဝူ
                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                       Ö,
                                                                                                                                                                                                                                                                                                        ဝူ
                                                                                                                                                                                                                                                                                                                                         or
                                                                                                                                                                                                                                                                                                                                                                          or
                                                                                                                                                                                                                                                                                                                                                                                                            ç
                                                                                                                                                                                                                                                                                                                                                                                                                                             or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ę
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or
                                ω
                                                                ω
                                                                                                 g
                                                                                                                                  ø
                                                                                                                                                                   ω
                                                                                                                                                                                                  g
                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                         Ω
                                                                                                                                                                                                                                                                                                                                                                         ω
                                                                                                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-692-570-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-089-514-4 (1-103) x US-08-916-421B-1 (1-1664976)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-916-421B-1
                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
Patent No. 6797466
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1, Application US/09692570 Patent No. 6797466 GENERAL INFORMATION:
                                                                                                                                                                           SOFTWARE: PatentIn version 3.1 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (1602912)..(1602912)
OTHER INFORMATION: n equals a, t
NAME/KEY: misc_feature
LOCATION: (1603734)..(1603734)
OTHER_INFORMATION: n equals a, t
                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/692,570 CURRENT FILING DATE: 2003-01-14 PRIOR APPLICATION NUMBER: US 60/024,428 PRIOR FILING DATE: 1996-08-22 PRIOR APPLICATION NUMBER: US 08/916,421 PRIOR FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: PB275C1
                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Bult et al.
                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 20
                                              NAME/KEY: misc feature
LOCATION: (28232)..(28222)
OTHER INFORMATION: n equals
                                                                                                     ORGANISM: Methanococcus FEATURE:
                                                                                                                                         TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (1637998)..(1637998)
OTHER INFORMATION: n equals a,
                   NAME/KEY:
                                       FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (1664854)..(1664855)
 OCATION:
                                                                                                                                                         ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1238418 ATATTAAAGCTAATTGCTGAAAGAAATAGTTTAGCTAAGGATGTAGCTGAGATAAAAAAT 1238477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1238538 AAACTTTGTAAAGAACATAACGTTGAAAATATTGGCATTAAAATATTTCAAATACTT 1238597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1238478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1238358 GTTACAATGATAGAGAAACTTGCTGAAATTÄGGAAGATTGATGAGAGATTGACAATAAG 1238417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1238598 ATA 1238600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41 ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer 40
                                                                                                                                                           1664976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
misc_feature
(28257)..(28258)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ile 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Complete Genome Sequence of the Methanogenic Archaeon, Methanococ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.0612
112.00
53.09%
24.69%
21.79%
                                                                                                                                                                                                                                                                                                                                                   jannaschii
                                                                                                                       jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a,
                                                  Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ļ
                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ç
                                                  or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1664976
20
```

FEATURE:

NAME/KEY: misc_feature
LOCATION: (234814)..(234814)
OTHER INFORMATION: n equals a, t.
FEATURE:
NAME/KEY: misc_feature
LOCATION: (309398)..(309398)
OTHER INFORMATION: n equals a, t. NAME/KEY: misc feature
LOCATION: (84812)..(84812)
OTHER INFORMATION: n equals a,
FEATURE:
NAME/KEY: misc feature
LOCATION: (98120)..(98120)
OTHER INFORMATION: n equals a FEATURE:
NAME/KEY: misc feature
LOCATION: (148948)..(148948)
OTHER INFORMATION: n equals
FEATURE: FEATURE:
NAME/KEY: misc_feature
LOCATION: (98239)...(98239)
OTHER_INFORMATION: n equals FEATURE: NAME/KEY: misc_feature
LOCATION: (84773)...(84773)
OTHER_INFORMATION: n equals FEATURE:
NAME/KEY: misc_feature
LOCATION: (234220)...(234220)
OTHER INFORMATION: n equals FEATURE:

NAME/KEY: misc_feature
LOCATION: (234187)...(234187)
OTHER INFORMATION: n equals FEATURE:

NAME/KEY: misc_feature
LOCATION: (231980)..(231980)
OTHER INFORMATION: n equals NAME/KEY: misc_feature LOCATION: (191995)..(191995) OTHER INFORMATION: n equals NAME/KEY: misc feature LOCATION: (191989)..(191989) OTHER INFORMATION: n equals FEATURE: NAME/KEY: misc feature LOCATION: (163385)..(163385) OTHER INFORMATION: n equals FEATURE: NAME/KEY: misc_feature LOCATION: (103998)..(103998) OTHER INFORMATION: n equals FEATURE:
NAME/KEY: misc_feature
LOCATION: (98266) ... (98266)
OTHER INFORMATION: n equals FEATURE:
NAME/KEY: misc_feature
LOCATION: (98159)...(98159)
OTHER INFORMATION: n equals FEATURE:
NAME/KEY: misc_feature
LOCATION: (84808)...(84808)
OTHER INFORMATION: n equals NAME/KEY: misc_feature LOCATION: (98343)..(98343) OTHER INFORMATION: n equals OTHER INFORMATION: n equals a, a a a a 9 a v a, a a, a, a, a, a, a a, a a v ŗ ŗ ŗ 5 ŗ ŗ ,, ŗ ŗ Ĺ Ļ ŗ ,, ŗ ŗ ŗ ç, ů ú ç ç ç ū ū ú ú ç ú ú ņ ç ņ ņ ņ ņ ဓ္ õ 9 ဝူ ů, ö ö Ö ö or 0 F õ ဝူ Ö, or o R 9 ö õ g g 9 ω Q ω g ω g g ω ø g ω ıΩ Q ω

NAME/KEY: misc_feature LOCATION: (871619)(871619) OTHER INFORMATION: n equals	NAME/KEY: misc feature LOCATION: (85539)(85539) OTHER INFORMATION: n equals FEATURE:	NAME/KEY: misc feature NAME/KEY: misc feature LOCATION: (779676)(779676) OTHER INFORMATION: n equals FRATURE:		NAME/KEY: misc_feature NAME/KEY: misc_feature LOCATION: (741584) (741684) OTHER INFORMATION: n equals FRATURE:	NAME/KEY: misc_feature NAME/KEY: misc_feature LOCATION: (713652)(713652) OTHER INFORMATION: n equals	4 H O H b	NAME/KEY: misc_feature NAME/KEY: misc_feature LOCATION: (674435)(674435) OTHER INFORMATION: n equals	NAME/KEY: misc_feature LOCATION: (657203)(657203) OTHER INFORMATION: n equals	NAME/KEY: misc_feature NAME/KEY: misc_feature LOCATION: (657081)(657081) OTHER INFORMATION: n equals	NAME/KEY: misc feature NAME/KEY: misc feature LOCATION: (622708)(622708) COTHER INFORMATION: n equals	1 H O H t	NAME/KEY: misc feature NAME/KEY: misc feature LOCATION: (559241)(559241) OTHER INFORMATION: n equals	NAME/KEY: misc_feature NAME/KEY: misc_feature LOCATION: (559167)(559167) OTHER INFORMATION: n equals	NAME/KEY: misc feature LOCATION: (319226)(319226) OTHER INFORMATION: n equals	NAME/KEY: misc feature NAME/KEY: misc feature LOCATION: (312993)(312993) OTHER INFORMATION: n equals		ATURE ME/KE CATIO HER I
ρ.	က	a,	Ď	p.	D .	b	ຸນ	ຸ້ນ	b	ρ.	ָ פֿי	b	້ຄ	Ö	້ຄ	e .	ຸ້
'n,	Ĺ	τ,	ŗ	ţ	τ,	ָר,	t,	Ĺ	Ĺ,	ָר,	ָרָי.	ţ	ή.	Ġ.	Ĺ	ָרָי.	΄,
ů	c,	ů.	ú	, O	Ç	,	Ç	ç,	Ç	ç	ū	ņ	ņ	c,	Ç	ņ	ō
or	ę	Or C	or C	O F	o R	OF.	or S	9	9	OH C	o R	og G	og G	o R	ę R	o H	o g
Q	Ω	g	Q	ω.	10	ω	ω.:	ω .	φ	φ.	Q	ω.	Q	ω	Q	Ω	ω,

```
Sequence 1138, Application US/09543681A

Patent No. 6605709

GENERAL INFORMATION:
APPLICANT: GARY BRETON

TITLE OF INVENTION: NUCLEIC ACID AND AMINO AC
TITLE OF INVENTION: DIAGNOSTICS AND THERAPEU
FILE REFERENCE: 2709.11002-001
CURRENT APPLICATION NUMBER: US/09/543,681A
CURRENT FILING DATE: 2000-04-05
PRIOR APPLICATION NUMBER: US 60/128,706
PRIOR FILING DATE: 1999-04-09
NUMBER OF SEQ ID NOS: 8344
; SEQ ID NO 1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                        RESULT 7
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-4 (1-103) x US-09-692-570-1 (1-1664976)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local
Query Match
                                                                                                                                                                                                                     US-09-543-681A-1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REATURE: misc feature
NAME/KEY: misc feature
1349473)..(1349473)
n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc feature
LOCATION: (1310988)..(1310988)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
NAME/KEY: misc_feature
LOCATION: (1130881)...(1130881)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc feature
LOCATION: (1096846)..(1096846)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: (1119881)..(1119881)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (1084830)..(1084830)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature
LOCATION: (1313224)..(1313224)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                       1238598 ATA 1238600
                                                                                                                                                                                                                                                                                                                                      1238538 AAACTTTGTAAAGAACATAACGTTGAAGAAATATTGGCATTAAAATATTTCAAATACTT 1238597
                                                                                                                                                                                                                                                                                                                                                                                                         1238478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1238418 ATATTAAAGCTAATTGCTGAAAGAAATAGTTTAGCTAAGGATGTAGCTGAGATAAAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1238358 GTTACAATGATAGAGAAACTTGCTGAAATTAGGAAGAAGATTGATGAGAATTGACAATAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scores:
                                                                                                                                                                                                                                                                                                      18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity:
                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                      41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                                                                                                      Ile
                                                                                                                                                                                                                                                                                                                                                                                                    ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                     ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.0612
112.00
53.09%
24.69%
21.79%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĺţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative:
                                                                                                                    AMINO ACID SI
THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                   SEQUENCES RELATING TO PROTEUS MIRABII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1664976
20
23
38
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1238417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1238477
                      밁
                                                 S
                                                                                  밁
                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                 US-10-089-514-4 (1-103) x US-09-489-039A-4503 (1-1305)
                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores: Pred. No.:
                                                                                                                                                                                                    Query Match:
                                                                                                                                                                                                                                                    Score:
                                                                                                                                                                                                                                                                       Pred.
                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                     US-09-489-039A-4503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-489-039A-4503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-4 (1-103) x US-09-543-681A-1138 (1-1125)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-543-681A-1138
                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 4503
LENGTH: 1305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 4503, Application Patent No. 6610836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Gary Breton et. al TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TITLE OF INVENTION: PREUMONIAE FOR DIAGNOSTICS AND THERAPEUTICS FILE REFERENCE: 2709.2004001
CURRENT APPLICATION NUMBER: US/09/489,039A
CURRENT FILING DATE: 2000-01-27
                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: US 60/117,747
PRIOR FILING DATE: 1999-01-29
NUMBER OF SEQ ID NOS: 14342
                                                                                                                                                                                                                                                                                                                               TYPE: DNA
ORGANISM: Klebsiella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Proteus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1125
TYPE: DNA
                                                                                                                                                                                                                                                                     No.:
                                                                                   145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   211 ---ATTGAAGATGTTTTACGTCGAGTAATGAGAGAGTCATATAGCAAAGAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    190 ATGGGTATTTCTGCTGATTTA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    130 ATCTATGCACCAGATAGAGAAGCCGCAATGCTTGCTTCGCACGTAATGAAGCAGAAAAA 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86 ArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66 HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 46 MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70 GCCAAAAGAATGCAATTGGTAGCAGAAGTGGGAGAAGTTAAAAATCGCCACGGGTTACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6 GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                  ATGACCGAGGAAAACCCATTACTGGCGCTGCGCGATAAGATAAGCGCCCTGGACGAGAAG
                    CTGCTTGCTCTGCTGGCGGAGCGCCGCGGACTGGCTGTTGAGGTTGGAAAAGCCAAACTG
                                                                                                           MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mirabilis
                                                                                                                                                                                     2.46e-05
105.00
48.45%
29.90%
20.43%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.43e-05
106.00
46.94%
27.55%
20.62%
                                                                                                                                                                                                                                                                                                                                   pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/09489039A
                                                                                                                                                                                                   Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
                                                                                                                                                                                   Gaps:
                                                                                                                                                                                 1305
29
18
44
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1125
27
19
36
16
```

85

45

65 129 25

69

ö

KLEBSIELLA

```
APPLICANT: Hinkle, Gregory J.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Slater, Steven C.
APPLICANT: Wiegand, Roger C.
FILE OF INVENTION: Myxococcus xanthus Genome Secont Reference: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
NUMBER OF SEQ ID NOS: 16825
SEQ ID NO 2740
LENGTH: 1963
TYPE: DNA
COCANTEM: MYYOCOCCCUS Xanthus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best I
                                                                                                                                                                                         밁
                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                  US-09-902-540-1129/c
                                                                                                                                                      RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-4 (1-103) x US-09-902-540-2740 (1-1963)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Myxococcus xanthus US-09-902-540-2740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-902-540-2740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                 Sequence 1129, Application US/09902540
Patent No. 6833447
GENERAL INFORMATION:
APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2740, App
Patent No. 6833447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Match:
                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              325
                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                              81
                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
Goldman, Barry S.
Hinkle, Gregory J.
Slater, Steven C.
Wiegand, Roger C.
                                                                                                                                                                                         ATCGACATGTCCGTGGCTCGGCAACACGAGCTCGTC
                                                                                                                                                                                                                                                                                                                                            GCCGCCGCCGCCCTTCCGGGACCAGCGCCGCGAGGACCTGCTCCTGCGCCGCATCCGC
                                                                                                                                                                                                                                                                                                                                                                             ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla 60
                                                                                                                                                                                                                                                                                                                                                                                                                    ATCCTCGATGCCCTCCGCCGCATGGCGCTGGCGGACGACGTCGCCCGGGCGAAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTATCGGCAAGCGCCATAATCTGGATGCGCACTATATCACCCGCCTGTTCCAGCTGATT
                                                                                                                                                                                                                                                               ACCCGCGCGCGGAGCACGGCCTGGACCCGCACGAGGTGGAGCGCATCTGGCGGCTCTTC 240
                                                                                                                                                                                                                                                                                                   ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGACCACCCTCCCCGACCTCGACCTCATCCGGACCTCCATCGAGCGCATCGACGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCTCCCATCGTCCGGTGCGTGATATTGACCGCGAACGCGATCTGCTGGAGCGCCTGATG
                                                                                                                                                                                                                            Ile---ThrGluMetCysArgValGluAspLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/09902540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5.2e-05
104.50
48.91%
30.43%
20.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---GAAGACTCTGTTCTTACCCAGCAAACCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequences and Uses Thereof
                                                                                                                                                                                           276
                                                                                                                                                                                                                            91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1963
28
17
46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       97
                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            384
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-221-017B-361/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-4 (1-103) x US-09-902-540-1129 (1-15689)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-902-540-1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 361, Application Patent No. 6444799
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ ID NO 1129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: Myxococcus xanthus Genome Sequences and FILE REFERENCE: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
NUMBER OF SEQ ID NOS: 16825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA ORGANISM: Myxococcus xanthus
                                                                                                                                                                         COMPUTER: IBM Compatible
OPERATING SYSTEM: Windows
SOFTWARE: Fast-SEQ for Windows Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                         COUNTRY: USA
ZIP: 94304-1018
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
                FILING DATE: 31-DEC-
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: ROSS, Bruce C.
TITLE OF INVENTION: P. GINGIVALIS NUCLEOTIDES AND USES THEREOF NUMBER OF SEQUENCES: 1120
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENGTH: 15689
                                                                             PRIOR APPLICATION DATA: APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.:
                                                                                                                                                                                                                                                                                                                                          STREET: /5. CITY: Palo Alto
                                                                                                                     FILING DATE: 2: CLASSIFICATION:
                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: MORRISON & FOERSTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8044 ATGACCACCCTCCCCGACCTCGACCTCATCCGGACCTCCATCGAGCGCATCGACGAGGAG 7985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7804 ATCGACATGTCCGTGGCTCGGCAACACGAGCTCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7924 GCCGCCGCCGCCCTTCCGGGACCAGCGCCGAGGACCTGCTCCTGCGCCGCATCCGC 7865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7984 ATCCTCGATGCCCTCCGCCGCCGGATGGCGCTGGCGGACGTCGCCCCGGGCGAAGCTG 7925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7864 ACCCGCGCCGCGGAGCACGGCCTGGACCCGCACGAGGTGGAGCGCATCTGGCGGCTCTTC 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81 Ile---ThrGluMetCysArgValGluAspLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ដ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41 ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr 20
                                                                                                                                                                                                                                                                                                                                                                                  755 PAGE MILL
                                                                                                                                                                                                                                                               Diskette
30-JAN-1998
                                                            31-DEC-1997
                                                                                                                                        23-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104.50
48.91%
30.43%
20.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.000997
                                                                                                                                                          US/09/221,017B
                                                                               PP1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US/09221017E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                                                                                                                                  2.0b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
```

PRIOR APPLICATION DATA:

```
APPLICANT: Gary Breton et. al
FITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEC
FITTLE OF INVENTION: PNEUMONIAE FOR DIAGNOSTICS AND
FILE REFERENCE: 2709.2004001
CURRENT APPLICATION NUMBER: US/09/489,039A
CURRENT FILING DATE: 2000-01-27
PRIOR APPLICATION NUMBER: US 60/117,747
PRIOR APPLICATION NUMBER: US 60/117,747
PRIOR FILING DATE: 1999-01-29
NUMBER OF SEQ ID NOS: 14342
SEQ ID NO 4572
SEQ ID NO 4572
LENGTH: 1131
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                        US-09-489-039A-4572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-4 (1-103) x US-09-221-0178-361 (1-850)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-221-017B-361
                                                                                                                                                                                    Sequence 4572, Application US/09489039A Patent No. 6610836
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
LENGTH: 850 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: 650-813-5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER:
PILLING DATE: 10-DEC-1998
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGINAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY: ci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature LOCATION: 1...850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Monroy, Gladys H
REGISTRATION NUMBER: 32,430
REFERENCE/DOCKET NUMBER: 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE: 09-APF
                                                                                                                                                                                                                                                                                                                                                                                                                         154 GAATTGCTAGCTCGGCGGATGCAAGTGGCATACGAGATAGGTTTGTTCAAAAAAAGAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34
                                                                                                                                                                                                                                                                                                                        63
                                                                                                                                                                                                                                                                                                                                                          94
                                                                                                                                                                                                                                                                                                                                                                                           43
                                                                                                                                                                                                                                                                                                                                                                                                                                                           23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 GluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                   AspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHis
                                                                                                                                                                                                                                                                                                             AlaAlaAspHisGlyLeuAspGluSerPheLeu 73
                                                                                                                                                                                                                                                                                                                                                         AATCTGGCTGTGGTTCAGAATCTCCGCTACGAACAACTACAGCGCAACCGTGCCCGTACT
                                                                                                                                                                                                                                                                                                                                                                                      GlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                       GCAGCCCTCTTAGGTTTGGACGAAACATTTATA 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    706141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                650-494-0792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               UNKNOWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                circular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PORYPHYROMONAS GINGIVALIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.00014
98.00
56.34%
29.58%
19.07%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27340-20021.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches:
                                                                                                                                       AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            850
21
19
31
0
                                                                                                                                                      겅
                                                                                                                                                      KLEBSIELLA
                                                                                                                                                                                                                                                                                                                                                                                                                       95
                                                                                                                                                                                                                                                                                                                                                                                                                                                          42
```

```
S
                                                                     밁
                                                                                                       Ś
                                                                                                                                                                                           Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 13
US-09-902-540-5637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
 밁
                                                                                                                                                                                                                                                                                                                       ; TYPE: DNA
; ORGANISM: Myxococcus
US-09-902-540-5637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity: Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Klebsiella
US-09-489-039A-4572
                                                                                                                                           US-10-089-514-4 (1-103) x US-09-902-540-5637 (1-1038)
                                                                                                                                                                                                                                   Percent Similarity:
                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-4 (1-103) x US-09-489-039A-4572 (1-1131)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 16825
SEQ ID NO 5637
LENGTH: 1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence 5637, Application US/09902540 Patent No. 6833447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Genome Sequences and Uses Thereof
FILE REFERENCE: 38-10(15849)B
                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: 60/217,883 PRIOR FILING DATE: 2000-07-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/902,540 CURRENT FILING DATE: 2001-07-10
                                                                                                                                                                                                                                                                       No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         М
::
835 CGTCGCGCCCAGCTCATCCAGCAGGCCGCACACCTGAAGGCCGAGCACGGACTTCCGCTG
                                                                       775 CTGACGGAAGTTCGGGAGTGCGTGGATGCGTTGGACCTGGTTCAACTCCTGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              220 ---ATCGAAGACGTTCTGCGTCGCGTGATGCGGGAATCCTATTCCAGCGAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199 CTCGGCGTACCACCGGATCTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         139 ATTTACGTCCCGGAGCGCGAGTCGGCGATGCTCGCCTCCCGACGTGAAGAGGCGGCTGCG
                            27 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86 ArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66 HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           46 MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 79 GCTAAGCGTCTGGAGCTGGTGGCCGAAGTCGGCGAGGTGAAGAGCCAGTATGGCCTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19 GAACTGACCGCGTTACGCGATCAAATTGATGAAGTGGATAAAGCGTTGCTTAGCCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6 GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                     LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.00112
93.00
47.96%
26.53%
18.09%
                                                                                                                                                                                               0.0027
90.00
53.33%
26.67%
17.51%
                                                                                                                                                                                                                                                                                                                                            xanthus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pneumoniae
                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches:
                                                                                                                                                                            1038
20
20
35
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              270
 894
                                   46
                                                                     834
                                                                                                         26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        78
```

```
Sequence 1269, Application US/09902540

Patent NO. 6833447

GENERAL INFORMATION:

APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Wiegand, Roger C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Genome Sectific Reference: 38-10(15849)B

CURRENT APPLICATION NUMBER: US/09/902,540

CURRENT APPLICATION NUMBER: G0/217,883

PRIOR APPLICATION NUMBER: 60/217,883

PRIOR APPLICATION NUMBER: G0/217,883

PRIOR FILING DATE: 2000-07-10

PRIOR APPLICATION NUMBER: G0/217,883

PRIOR FILING DATE: 2000-07-10

                                                                                                                                                                                                                                                                                                                                            RESULT 15
US-09-252-991A-4814/c
; Sequence 4814, Application US/09252991A
; Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 14
US-09-902-540-1269/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-4 (1-103) x US-09-902-540-1269 (1-49225)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-902-540-1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND ANINO ACID SEQUENCES RELATING TO
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 4814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 49225
TYPE: DNA
ORGANISM: Myxococcus xanthus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
0
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40784 CCAGACGCGGAGCGCGAGCCTGCTGGAGACCCGGCGTCAGTGGGCCGCGGAGCAG 40725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40904 CTGACGGAAGTTCGGGAGTGCGTGGATGCGTTGGACCTGGGTTCAACTCCTGAAT 40845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTCGCGCCCAGCTCATCCAGCAGGCCGCACACCTGAAGGCCGAGCACGGACTTCCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMet 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCATGGACGCGACGACACGGAAGACGTGTTCCGCGCCCGTCCTG 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGACGCGGAGCGCGAGCCTGCTGCAGAGCCCCGGCGTCAGTGGGCCGGAGCAG 954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCATGGACGCGGACGACACGGAAGACGTGTTCCGCGCCGTCCTG 40680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIle 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIle 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.648
90.00
53.33*
26.67*
17.51*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequences and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               49225
20
20
20
35
0
                                                                                                                                                                                                                                                                          PSEUDOMONAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99
```

```
밁
                                                                                                                           В
                                                                                                                                                       8
                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                      Query Match:
DB:
                         Ş
                                                                                        Ś
                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                       US-10-089-514-4 (1-103) x US-09-252-991A-4814 (1-804)
                                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                     Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Pseudomonas aeruginosa US-09-252-991A-4814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA
516 AACGGACTCGACGCCCTTCGTCGAGGGACTGTTCGCGCAGATCATC
                                                             570
                                                                                                                           630
                                                                                                                                                                                          690
                          66 HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIle 81
                                                                                           46
                                                                                                                                                       27 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLys---SerArgHisGlyValPro 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     804
                                                                                                                                                                                                                       7 LeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArg
                                                                                        MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                           CGCCGCATGGACTACGTCAAGGCGGCGTCGCCGCTTCAAGGCCAGCGAGGCGAGTCCCG
                                                                                                                                                                                       CTGGCGGACATCCGCGAGGCCATCGACCTGGATATCGTCCAGGCCCTCGGC
                                                            0.0031
88.50
53.95%
31.58%
17.22%
                                                                                                                                                                                                                                                                                                     Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
```

57

Search completed: October Job time: 605.367 secs 5 2005, 21:11:55

(otqsu) ^{Aniola} Sepoq siriT

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Command line |
-MODEL=frame+
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -MODEL=frame+ p2n.model -DEV=xlh
-Q=/cg12 1/USPTO_spool h/US10089514/runat_04102005_105745_8055/app_query.fasta_1.1621
-Q=/cgn2 1/USPTO_spool h/US10089514/runat_04102005_105745_8055/app_query.fasta_1.1621
-DB=PublTshed_ApplicatIons_NA -QFMT=fastap -SUFFIX=rnpb -MINMATCH=0.1
-LOOPEL=0 -LOOPEXT=0 -UNITG=bits -START=1 -END=-1 -MATRIX=bitosum62
-TRANS=human40.cdi -LIST=45 -DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100
-THR_MIN=0 -ALIGN=15 -MODE=LOCAL -QUTFWT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0
-MAXIEN=2000000000 -USER=US10089514 @CGN 1 1 920 @Tunat_04102005_105745_8055
-NCPU=6 -ICPU=3 -NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPBLCCK=100
-LONGLOG -DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              日日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq length:
seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xgapop 10.0 , y
Ygapop 10.0 , y
Fgapop 6.0 , E
Delop 6.0 , E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           October 5, 2005, 09:57:48; Search time 226.674 Seconds (without alignments) 3137.453 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       514
1 MTEQNELQRLRAELDALDGT....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Published_Applications_NA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7442561 segs, 3452328358 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-089-514-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Listing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       // Cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US06_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US07_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US08_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US08_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US08_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Copyright
                      /cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09A_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09A_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10A_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10A_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10T_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10T_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10T_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10T_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10T_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US10T_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Match 100%
first 45 su
6/ptodata/1/pubpna/US60_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenCore version (c) 1993 - 2005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .....MCRVEDLVMSRESLTAEDRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     n 5.1.6
Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14885122
```

0 0 0 0 0 0 0 0 0 0 0 0

Pred. ŏ. 18 the number of results predicted by chance to have

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Result ö 514 486.5 Score 96 100.0 Match 116.7 115.3 9025608 Length 312 3305 12391 1122 1122 1152 1152 1153 1833 387 B 7 US-10-329-670-1 0 US-10-158-865-1 2 US-10-981-687-1 2 US-10-981-687-1 2 US-10-981-687-1 2 US-10-156-761-253 3 US-10-335-977-4562 US-10-027-632-99312 US-10-027-632-99312 US-10-027-632-98019 US-10-027-632-98019 US-10-027-632-98019 US-10-027-632-98019 US-10-027-632-98019 US-10-027-632-98019 US-10-027-632-98019 US-10-027-632-98019 US-10-027-632-98019 US-10-027-632-166491 US-10-027-632-166491 US-10-027-632-166491 US-10-10-369-493-24241 US-10-10-37-632-166491 US-10-10-389-493-24241 US-10-10-389-493-24241 US-10-102-524-1727 US-10-102-524-1727 US-10-472-928-4979 US-10-369-493-36-322 US-10-146-772-249 US-10-440-523-249 US-10-440-523-249 US-10-440-523-249 US-10-440-572-260 US-10-320-797-260 US-10-320-797-260 US-10-320-797-260 US-10-137-310-3 US-10-433-556-18 US-10-380-132-7 US-10-282-122A-15346 US-10-634-548-16 US-10-433-556-20 US-10-194-163-361 US-10-181-779-40 US-10-156-761-6187 US-10-156-761-11 吕 US-10-472-587-3 US-10-126-927-6 US-10-156-761-1 Sequence 3, Appli Sequence 67, Appli Sequence 1, Appli Sequence 1, Appli Sequence 20, Appli Sequence 20, Appli Sequence 361, Appli Sequence 361, Appli Sequence 1, Appli Sequence 2533, Ap Sequence 2533, Ap Sequence 2531, Ap Sequence 99311, A Sequence 99311, A Sequence 99311, A Sequence 99311, A Sequence 99311, A Sequence 99311, A Sequence 166491, A Sequence 2611, Ap Sequence 16491, A Sequence 2741, A Sequence 2749, App Description

0000000

a

იი

RESULT 1 US-10-472-587-3 GENERAL INFORMATION:

APPLICANT: VANAI, Koji

APPLICANT: SUMIDA, Naomi

APPLICANT: WATANABE, Manabu

APPLICANT: WATANABE, Manabu

APPLICANT: MORIYA, Tatesuki

APPLICANT: MURAKAMI, Takesuki

APPLICANTION: Producing The Same And Novel Biosynthesis Genes

FILE REFERENCE: 2003-1302A/WMC/00144

CURRENT APPLICATION NUMBER: US/10/472,587

CURRENT FILING DATE: 2003-09-22

PRIOR APPLICATION NUMBER: 82227/2001 Sequence 3, Application US/10472587 Publication No. US20040214274A1

fo

ALIGNMENTS

```
RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-4 (1-103) x US-10-472-587-3 (1-312)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-472-587-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                          Sequence 68, Application US/10126927 Publication No. US20030082575A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR FILING DATE: 2001-03-22
NUMBER OF SEQ ID NOS: 40
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 3
LENGTH: 312
                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
              APPLICANT: Pastrnak, Miro
APPLICANT: Santoro, Stephen W
APPLICANT: Shang, Zhiwen
TITLE OF INVENTION: In Vivo Incorporation of Unnatural Amino Acids
FILE REFERENCE: 54-000120US
CURRENT APPLICATION NUMBER: US/10/126,927
CURRENT FILING DATE: 2002-04-19
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR APPLICATION NUMBER: US 60/285,534
PRIOR FILING DATE: 2001-04-19
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR FILING DATE: 2001-02-06
NUMBER OF SEQ ID NOS: 79
                                                                                                                                                                                                                                                                                                                       APPLICANT: The Scripps Research Institute
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: DNA
ORGANISM: Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: CDS
LOCATION: (1)..(309)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Мо.
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                Chin, Jason
Liu, David R
Magliery, Thomas
Meggers, Eric L
Mehl, Ryan A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspArgArg 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCCTGGACACGGTGCGGCGCGCATCGACCTCGGTGTCCGCATCGCGCGGTACAAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGACCGAGCAGAACGAGCTGCAGCGCGCGCGCGGAGCTCGACGCCCTCGACGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCGGGAGAGCCCTGACGGCCGAG
                                                                                                                                                                                                                                                                                                       Wang, Lei
Anderson, John C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.26e-68
514.00
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            312
103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 3
US-10-126-927-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
; ORGANISM: Plasmid pSC101, Streptomycese venezuelae papABC
US-10-126-927-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; LENGTH: 3305
; TYPE: DNA
; ORGANIZM: Streptomyces venezuelae
US-10-126-927-68
                                                                                               APPLICANT: Pastinak, Miro
APPLICANT: Santoro, Stephen W
APPLICANT: Zhang, Zhiwen
TITLE OF INVENTION: In Vivo Incorporation of
FILE REFERENCE: 54-000120US
CURRENT APPLICATION NUMBER: US/10/126,927
CURRENT FILING DATE: 2002-04-19
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR FILING DATE: 2002-02-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-4 (1-103) x US-10-126-927-68 (1-3305)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                        NUMBER OF SEQ ID NOS: 79
SOFTWARE: PatentIn version 3.1
SEQ ID NO 67
LENGTH: 12391
                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 67, Applica Publication No. US20 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO
                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: The Scripps Research Institute APPLICANT: Schultz, Peter G
                             TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Мо
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3290 CGAGGACCGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3170 CGCCCGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3110 GTCCCGGCACGGCGTCCCGATGATGCAGCCCGGCCGGGTCAGCCTGGTCAAGGACAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3230 GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGCCCGGGAGAGCCTGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        79 llleIleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59 aAlaArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19 YThrLeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99 aGluAspArgArg 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAl
                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/10126927
No. US20030082575A1
                                                                                                                                                                                                                                                                                Magliery, Thomas
Meggers, Eric L
                                                                                                                                                                                                                                                                                                            Chin, Jason
Liu, David R
                                                                                                                                                                                                                                                                                                                                           Wang, Lei
Anderson, John C
                                                                                                                                                                                                                                                                Mehl, Ryan
                                                                                                                                                                                                                                                                                                                                                                     Schultz,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.45e-63
486.50
98.10%
98.10%
94.65%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches:
Indels:
                                                                                                                                                                                                         of Unnatural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3305
103
0
0
2
                                                                                                                                                                                                            Amino
                                                                                                                                                                                                            Acide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
 밁
                          S
                                                        밁
                                                                                    ફ
                                                                                                                                               Query Match:
DB:
                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                APPLICANT: Valentin, Henry E.
APPLICANT: Witsky, Timothy A.
APPLICANT: Mitsky, Timothy A.
TITLE OF INVENTION: TyrA Genes and Uses Thereof
FILE REFERENCE: 16515.147
CURRENT APPLICATION NUMBER: US/10/137,310
CURRENT FILING DATE: 2002-05-03
PRIOR APPLICATION NUMBER: US 60/289,527
PRIOR FILING DATE: 2001-05-09
NUMBER OF SEQ ID NOS: 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 4
US-10-137-310-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         श
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-4 (1-103) x US-10-126-927-67 (1-12391)
                                                                                                                  US-10-089-514-4 (1-103) x US-10-137-310-1 (1-1122)
                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                    US-10-137-310-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                          SOFTWARE: PATENTIN VERSION 3.0
SEQ ID NO 1
LENGTH: 1122
TYPE: DNA
ORGANISM: Erwinia herbicola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 1, Application US/10137310 Publication No. US20030176675A1 GENERAL INFORMATION:
                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Хо
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             59
                26 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro 45
 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | IlleIleThrGluMetCysArgValGluAspLeuValMetSerArgGluSerLeuThrAl 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aAlaArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspVa
                                                                              GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aGlu 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    yThrLeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGACCGAGCAGAACGAGCTGCAGGTTGCGGCTGCGCGCGGAGCTCGACGCCCCTCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetThrGluGlnAsnGluLeuGln----ArgLeuArgAlaGluLeuAspAlaLeuAspGl
GATCATCACGGAGATGTGCCGCGTCGAGGACCTGGTGATGAGC---CCGTCATGTACTAA 235:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCCCGCTACGCCGACCACGGCCTCGACGAATCGTTCCTGGTGAACCTCTACGACGT
                                                       GAACTGACCGCGTTACGCGATCAAATTGACAGTGTAGATAAAGCGCTGCTGGATCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6.28e-55
439.00
94.12%
94.12%
85.41%
                                                                                                                                              6.86e-05
102.00
50.00%
27.55%
19.84%
                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12391
96
                                                                                                                                               27
22
33
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2114
                                                        69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                              밁
                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 5
US-10-634-548-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
RESULT
                                    밁
                                                                  S
                                                                                                          밁
                                                                                                                                      Ş
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-4 (1-103) x US-10-634-548-16 (1-1122)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-634-548-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 16, Application US/10634548 Publication No. US20040045051A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn version 3.2 SEQ ID NO 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: Tocopherol biosynthesis related genes and used thereof FILE REFERENCE: Ren-01-125
CURRENT APPLICATION NUMBER: US/10/634,548
CURRENT FILING DATE: 2003-08-05
PRIOR APPLICATION NUMBER: us 60/400,689
PRIOR FILING DATE: 2002-08-05
PRIOR FILING DATE: 2002-08-05
PRIOR FILING DATE: 2002-08-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: No. US20040045051A1ris, Susan APPLICANT: Lincoln, Kim APPLICANT: Abad, Mark Scott APPLICANT: Eilers, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 1122
TYPE: DNA
ORGANISM: Erwinia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          130
                                    211 ---ATTGAGGATGTGCTGCGTCGCGTGATGCGGGAATCCTATACCAGCGAGAAT 261
                                                                                                                                                                                130 ATCTATGTGCCTGAGCGTGAGGCGTCGATGCTGGCTTCGCGTCGCAAAGAGGCCCGAAGCG 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    190 CTCGGCGTACCACCGGATCTG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          211 ---ATTGAGGATGTGCTGCGTCGCGTGATGCCGGAATCCTATACCAGCGAGAAT 261
                                                                                                                                          66 HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys
                                                                                                                                                                                                                    46
                                                                                                                                                                                                                                                        70
                                                                                                                                                                                                                                                                                                                              10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      66 HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            46 MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp 65
                                                                                                                                                                                                                                                                                        26 ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro 45
                                                          ArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp 101
                                                                                                          CTCGGCGTACCACCGGATCTG---
                                                                                                                                                                                                                MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp 65
                                                                                                                                                                                                                                                  GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCTATGTGCCTGAGCGTGAGGCGTCGATGCTGGCTTCGCGTCGCAAAGAGGCCGAAGCG 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Valentin, Henry E.
Venkatesh, Tyamagondlu V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hartsuyker, Karen Kindle
Hirshberg, Joseph
Karunanandaa, Balasulojir
Moshiri, Farhad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Stein, Joshua C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          herbicola
                                                                                                                                                                                                                                                                                                                                                                                                                                        6.86e-05
102.00
50.00%
27.55%
19.84%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Balasulojini
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                          1122
27
22
33
16
                                                                                                                                                85
                                                                                                                                                                                                                                                                                                                                69
                                                                                                                                                                                                                                                        129
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                           RESULT 7
US-10-194-163-361/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-4 (1-103) x US-10-433-556-20 (1-1152)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; LOCATION: (1)..(1119)
US-10-433-556-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILE REFERENCE: 5500*120
CURRENT APPLICATION NUMBER: US/10/433,556
CURRENT FILING DATE: 2003-06-04
NUMBER OF SEQ ID NOS: 30
SOFTWARE: Patentin version 3.2
SEQ ID NO 20
SEQ ID NO 20
                                                                                                                                                                                                                                                                                                                                  Sequence 361, Application US/10194163 Publication No. US20020172976A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 20, A Publication No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Matringe, Michel
APPLICANT: Rippert, Pascal
TITLE OF INVENTION: Novel Targets For Herbicides And Transgenic Plants
TITLE OF INVENTION: Said Herbicides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Erwinia herbicola FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No . :
COUNTRY: USA
ZIP: 94304-1018
ZIP: 94304-1018
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: Windows
SOFTWARE: FastSEQ for Windows Version 2.0b
                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
ADDRESSEE: MORRISON & FOERSTER
                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                               APPLICANT: Ross, Bruce Carter
                                                                                                                                                                                                                                                                                                                                                                                                                                                       211 ---ATTGAGGATGTGCTGCGTCGCGTGATGCGGGAATCCTATACCAGCGAGAAT 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      190 CTCGGCGTACCACCGGATCTG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130 ATCTATGTGCCTGAGCGTGAGGCGTCGATGCTGGCTTCGCGTCGCAAAGAGGCCGAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  86 ArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10 GAACTGACCGCGTTACGCGATCAAATTGACAGTGTAGATAAAGCGCTGCTGGATCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66 HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26 ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6 GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MetMetGlnProGlyArqValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                                                                         CITY: PALO ALTO
                                                                                                                                                                                             STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/10433556
                                                                                                                                                      S
                                                                                                                                                                                             755 PAGE MILL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.11e-05
102.00
50.00%
27.55%
19.84%
                                                                                                                                                                                                                                                                          PORPHYROMONAS GINGIVALIS POLYNUCLEOTIDES AND USES THEREOF
                                                                                                                                                                                                                                                       1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Resistant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        To
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                  US-10-381-779-40/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment
                                                                                                                                                                                                                                                                      Sequence 40, Application US/10381779 Publication No. US20030219798A1 GENERAL INFORMATION:
                                                                                                                                                                 APPLICANT: Gokarn, Ravi R
APPLICANT: Jessen, Holly
APPLICANT: Zidwick, Mary Jo
TITLE OF INVENTION: Isoprenoid Production
FILE REFERENCE: 12904/002US1
                            CURRENT APPLICATION NUMBER: US/10/381,779
CURRENT FILLING DATE: 2003-03-28
PRIOR APPLICATION NUMBER: PCT/US01/30328
PRIOR FILING DATE: 2001-09-28
PRIOR APPLICATION NUMBER: 60/236,580
PRIOR FILING DATE: 2000-09-29
NUMBER OF SEQ ID NOS: 190
        SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Мо.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGINAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ANTI-SENSE: UNKNOWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                        63 AlaAlaAspHisGlyLeuAspGluSerPheLeu 73
                                                                                                                                                                                                                                                                                                                                                                                                3<u>4</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94 AATCTGGCTGTGGTTCAGAATCTCCGCTACGAACAACTACAGCGCAACCGTGCCCGTACT 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43 GlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyr 62
                                                                                                                                                                                                                                                                                                                                                                                                GCAGCCCTCTTAGGTTTGGACGAAACATTTATA 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE:
```

```
US-10-089-514-4 (1-103) x US-10-194-163-361 (1-850)
                                                                                                                                                                                                                                                                                                                                                ; SEQUENCE DESCRIPTION: SEQ ID NO: US-10-194-163-361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEX: 706141
INFORMATION FOR SEQ ID NO: 361
SEQUENCE CHARACTERISTICS:
LENGTH: 850 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 04-Nov-2002
CLASSIFICATION: <Unknown>
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REGISTRATION NUMBER: 43,318
REFERENCE/DOCKET NUMBER: 52
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: DNA (genomic)
154 GAATTGCTAGCTCGGCGGATGCAAGTGGCATACGAGATAGGTTTGTTCAAAAAAGAGCAC
                                                                           23 AspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHis 42
                                                                                                             3 GluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature LOCATION: 1...850
                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: PORPHYROMONAS GINGIVALIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 650-494-0792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: 650-813-5995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: circular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/10/194,163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Basu, Shantanu
                                                                                                                                                                                       0.00019
98.00
56.34%
29.58%
19.07%
                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     529282000101
                                                                                                                                                                                                             Mismatches:
Indels:
                                                                                                                                                                                         19
19
31
```

```
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 6187
LENGTH: 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 6187, Application US/10156761
Publication No. US20030119018A1
GENERAL INFORMATION;
APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: HORIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-156-761-6187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ई
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              र
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: DNA
; ORGANISM: Sphingomonas trueperi
US-10-381-779-40
                                                                                 Pred.
                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-089-514-4 (1-103) x US-10-381-779-40 (1-1833)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                      US-10-156-761-6187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 40
LENGTH: 1833
                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: 249-262
                                                                                                                                                    NAME/KEY: CDS
LOCATION: (1)
                                                                                                                                                                                   ORGANISM: Streptomyces avermitilis FEATURE:
                                                                                                                                                                                                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                   ŏ
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            285 ATCGACGAGGTGATCCGG 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81 ileThrGluMetCysArg 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGCTGGCGCAGGATGCCGATCTCGACCCCGAATTTTCCCGAGAAATTCCTGCGCTTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAATCCGGGCTGCCCGCCGATCCCGGCCGCGAGGAGGCGCAGATCGCCCGGCTGCGC 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCGTCTTCATGCTCGCCGAGCGGTTCAAGGTGACCCAGGCGGTGGGGGCGCTACAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGACCGACGCGACG---CTGACCCGCTATCGCCAGAGCATCGACAATATCGATGCGGCG
                                                                                                                                                .. (387)
0.000742
91.00
45.68%
29.63%
17.70%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.000943
96.50
43.02%
31.40%
18.77%
                             Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1833
27
10
48
387
24
13
44
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 466
```

```
밁
                                                                              Ś
  S
                                                                                                                     밁
                                                                                                                                                           Ś
                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                  ; NAME/KEY: misc feature
; LOCATION: (4187715)
; OTHER INFORMATION: a, t
US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: ISHIKAWA, HIROSHI
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLB OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: UP 2001-204089
PRIOR APPLICATION NUMBER: UP 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEC 1500-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                    US-10-089-514-4 (1-103)
                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-4 (1-103) x US-10-156-761-6187 (1-387)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, Application US/10156761 Publication No. US20030119018A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
ORGANISM: Streptomyces avermitilis
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 9025608
                                                                                                                                                                                                                                                                                                                                            Хо
::
                                         7459306 GCCGAACGCTTCAAGTGCACCCAGCAGGTCGGCCACCTCAAAGCCGTACACCAGCTGCCG 7459365
                                                                                                                     7459246 GAACTCGCCCGGCTGCGACAGCATCGACAACATCGACGCCGCCGTCGTCCACATGCTC 7459305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              298 CGC 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           238 GCCAAACTCGACCCGGCGTTCGCCGAGAAGCTGCTGGGCTTCATCATCATCGCCGAGGTCATC 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       178 CCCGCCGACCCGGCCCGGCGAGGCCAGCCAGATCGCCCGACTGCGCCGGGCTCGCCGAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    118 GCCGAACGCTTCAAGTGCACCCAGCAGGTCGGCCACCTCAAAGCCGTACACCAGCTGCCG
46 MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86 Arg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  66 HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26 ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  58 GAACTCGCCCGGCTGCGCGACAGCATCGACATCGACGCCGCCGTCGTCCACATGCTC
                                                                                                                                                             σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            σ
                                                                              ArgargargIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                             GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86
                                                                                                                                                                                                  x US-10-156-761-1 (1-9025608)
                                                                                                                                                                                                                                         955
91.00
45.68%
29.63%
17.70%
                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                     ņ
                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                       other or unknown
                                                                                                                                                                                                                                                          Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                 Matches:
Conservative:
                                                                                                                                                                                                                                             24
13
0
    65
                                                                                                                                                               25
                                                                                4
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25
```

```
Sequence 3, Application US/10137310

Publication No. US20030176675A1

GENERAL INFORMATION:

APPLICANT: Valentin, Henry E.

APPLICANT: Mitsky, Timothy A.

TITLE OF INVENTION: TyrA Genes and Uses Thereof

FILE REFERENCE: 16515.147

CURRENT APPLICATION NUMBER: US/10/137,310

CURRENT FILING DATE: 2002-05-03

PRIOR APPLICATION NUMBER: US 60/289,527

PRIOR FILING DATE: 2001-05-09

NUMBER OF SEQ ID NOS: 12

SOFTWARE: Patentin version 3.0

SEQ ID NO 3

LENGTH: 1122

TYPE: DAN

CDANTING DESCRIPTION OF SEQ ID NOS: 12

SEQ ID NO 3
                                                                                                                                                                                                                                   뭉
                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 11
US-10-137-310-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                            US-10-433-556-18
                                                                                                                                                                                              RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-4 (1-103) x US-10-137-310-3 (1-1122)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; ORGANISM: Escherichia US-10-137-310-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                Sequence 18, Application US/10433556 Publication No. US20040117872A1 GENERAL INFORMATION:
                   APPLICANT: Matringe, Michel
APPLICANT: Rippert, Pascal
TITLE OF INVENTION: Novel Targets For
TITLE OF INVENTION: Said Herbicides
FILE REFERENCE: 5500*120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7459486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7459426 GCCAAACTCGACCCGGCGTTCGCCGAGAAGCTGCTGGGCTTCATCATCGCCGAGGTCATC 7459485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7459366
                                                                                                                                                                                                                                                                                                                                                                                        130
                                                                                                                                                                                                                                   211
                                                                                                                                                                                                                                                                                                               187
       APPLICATION
                                                                                                                                                                                                                                                                       85
                                                                                                                                                                                                                                                                                                                                                  65
                                                                                                                                                                                                                                                                                                                                                                                                                             46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCGCCGACCCGGGCCCGGGGCCAGGCCAGATCGCCCGGACTGCGCCGGGCTCGCCGGGAAAC 7459425
                                                                                                                                                                                                                                                         CysArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp 101
                                                                                                                                                                                                                                                                                                           GCTCTGGGTGTACCGCCAGATCTG------
                                                                                                                                                                                                                                                                                                                                                                                      ATTTATGTTCCGGAGGGGAGGGCATCTATGTTGGCCCTCGCGTCGTGCAGAG----GCGGAA 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGAAGCGTCTGGAACTGGTTGCTGAAGTGGGCGAGGTGAAAAGCCGCTTTGGACTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GAATTGACCGCATTACGCGATCAAATTGATGAAGTCGATAAAGCGCTGCTGAATTTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGC 7459488
                                                                                                                                                                                                                                                                                                                                              AspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMet
                                                                                                                                                                                                                                                                                                                                                                                                                         MetMetGlnProGlyArg---ValSerLeuValLysAspArgAlaAlaArgTyrAlaAla 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys
                                                                                                                                                                                                                                 --ATTGAGGATGTTTTGCGTCGGGTGATGCGTGAATCTTACTCCAGTGAAAAC 261
   NUMBER: US/10/433,556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.00467
90.00
49.49%
28.28%
17.51%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                             Herbicides
                                                             And
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1122
28
21
32
18
                                                           Transgenic
                                                             Plants Resistant
                                                                                                                                                                                                                                                                                                                                                84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69
                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 30
SOFTWARE: Patentin version 3.
SEQ ID NO 18
LENGTH: 1122
TYPE: DNA
ORGANISM: Escherichia coli
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-380-132-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-4 (1-103) x US-10-433-556-18 (1-1122)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-433-556-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 7, Application US/10380132
Publication No. US20030182679A1
                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: SunGene GmbH & Co. KGAA
TITLE OF INVENTION: Improved processes for
FILE REFERENCE: NAE445/2000
CURRENT APPLICATION NUMBER: US/10/380,132
CURRENT FILING DATE: 2003-03-11
NUMBER OF SEQ ID NOS: 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Ver.
                                                                                                                                                                                FEATURE:
NAME/KEY: gene
LOCATION: (7)..(1232)
OTHER INFORMATION: tyrA gene coding for bifunctional chorismate
OTHER INFORMATION: mutase / prephenate dehydrogenase
FEATURE: misc_feature NAME/KEY: misc_feature LOCATION: (1233)..(1238)
                                                       OTHER INFORMATION: restriction
                                                                         FEATURE:
NAME/KEY: misc_feature
LOCATION: (1)..(6)
                                                                                                                                  NAME/KEY: CDS
LOCATION: (25)..(1143)
                                                                                                                                                                                                                                                                                       LENGTH: 1238
TYPE: DNA
ORGANISM: Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: CDS
LOCATION: (1)..(1122)
                                                                                                                                                                        FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      211 -----ATTGAGGATGTTTTGCGTCGGGTGATGCGTGAATCTTACTCCAGTGAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        130 ATTTATGTTCCGGAGCGCGAGGCATCTATGTTGGCCTCGCGTCGTGCAGAG----GCGGAA 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               85 CysArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10 GAATTGACCCGCATTACGCGATCAAATTGATGAAGTCGATAAAGCGCTGCTGAATTTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65 AspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMet 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46 MetMetGlnProGlyArg---ValSerLeuValLysAspArgAlaAlaArgTyrAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70 GCGAAGCGTCTGGAACTGGTTGCTGAAGTGGGCGAGGTGAAAAGCCGCTTTGGACTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26 ArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6 GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTCTGGGTGTACCGCCAGATCTG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     version 3.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.00467
90.00
49.49*
28.28*
17.51*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2003-06-04
                                                           site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for vitamin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1122
28
21
32
18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 biosynthesis
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-380-132-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-282-122A-15346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-4 (1-103) x US-10-380-132-7 (1-1238)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                             CURRENT FILING DATE: 2003-02-20
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 15346, Application US/10282122A Publication No. US20040029129A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: Identification of Essential FILE REFERENCE: ELITRA.034A CURRENT APPLICATION NUMBER: US/10/282,122A
                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Wang, APPLICANT: Zamu
                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No . .
                                                                                                                            APPLICATION NUMBER: 60/230,335
FILING DATE: 2000-09-06
APPLICATION NUMBER: 60/230,347
FILING DATE: 2000-09-09
                                                                          APPLICATION NUMBER: 60/242,578
FILING DATE: 2000-10-23
APPLICATION NUMBER: 60/253,625
                                             FILING DATE: 2000-11 APPLICATION NUMBER:
            APPLICATION NUMBER: 60/267,636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CysArgValGluAspLeuVal-----MetSerArgGluSerLeuThrAlaGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetMetGlnProGlyArg---ValSerLeuValLysAspArgAlaAlaArgTyrAlaAla 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----ATTGAGGATGTTTTGCGTCGGGTGATGCGTGAATCTTACTCCAGTGAAAAC 285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCTGGGTGTACCGCCAGATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTTATGTTCCGGAGCGCGAGGCATCTATGTTGGCCTCGCGTCGTGCAGAG----GCGGAA 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGAAGCGTCTGGAACTGGTTGCTGAAGTGGGCGAGGTGAAAAAGCCGCTTTGGACTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAATTGACCGCATTACGCGATCAAATTGATGAAGTCGATAAAGCGCTGCTGAATTTATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMet 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Zamudio, Carlo
Malone, Cheryl
                                                                                                                                                                                                                                                                                                                                                                                 Forsyth, R.
                                                                                                                                                                                                                                                                                                                                                                                                                Carr, Grant
                                                                                                                                                                                                                                                                                                                                                                                                                                     Trawick, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ohlsen, Kari
Zyskind, Judith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Liangsu
                                                              2000-11-27
                               2000-12-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.00536
90.00
49.49%
28.28%
17.51%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 restriction site linker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Carlos
                                                                                                                                                                                                                                                                                                                                                                                                    Robert
-02-09
                                             60/257,931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels:
                                                                                                                                                                                                                                                                                                                                                  Genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28
21
32
18
                                                                                                                                                                                                                                                                                                                                                in Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25
```

```
; Remaining Prior Application data remove,
; NUMBER OF SEQ ID NOS: 78614
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 15346
; LENGTH: 1104
; TYPE: DNA
; ORGANISM: Clostridium acetobutylicum
US-10-282-122A-15346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 15
US-10-329-670-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/10/329,670
CURRENT FILING DATE: 2002-12-24
PRIOR APPLICATION UNMBER: US 09/643,990
PRIOR FILING DATE: 2000-08-23
PRIOR APPLICATION UNMBER: US 08/487,429
PRIOR FILING DATE: 1995-06-07
PRIOR FILING DATE: 1995-06-07
PRIOR APPLICATION UNMBER: US 08/426,787
PRIOR FILING DATE: 1995-04-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-089-514-4 (1-103) x US-10-282-122A-15346 (1-1104)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/10329670
Publication No. US20040018503A1
GENERAL INFORMATION:
APPLICANT: Fleischmann et al.
TITLE OF INVENTION: Nucleotide Sequence of the Haemophilus influenzae Rd Genome,
TITLE OF INVENTION: Thereof, and Uses Thereof
FILE REFERENCE: PBL86F1
FILE REFERENCE: PBL86F1
                                                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn version SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE: 2001-02-16
                               NAME/KEY: misc feature
LOCATION: (10150)...(10150)
OTHER INFORMATION: n equals
                                                                                                                                                                              NAME/KEY: misc feature
LOCATION: (4747)...(4747)
OTHER INFORMATION: n equals
                                                                                                                           NAME/KEY: misc feature LOCATION: (992)...(992)
                                                                                                                                                                                                                                      ORGANISM: Haemophilus influenzae FEATURE:
                                                                                                       LOCATION: (9921)..(9921)
OTHER INFORMATION: n equ
NAME/KEY: misc_feature
                                                                                            FEATURE:
                                                                                                                                                                                                                                                                            TYPE: DNA
                                                                                                                                                                                                                                                                                           ENGTH: 1830121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  187 AAGGAATATTCTGAGGTTCTTAAGGAGTTTTATATTAATTTTATGAACCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     46 MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67 GAAAAAAGAATGAATTTGGTTATGGAAGTTGCTGAGTATAAAGAAAAAATAGTATTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26 ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6 GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HisGlyLeuAspGlu-----SerPheLeuValAsnLeuTyrAspVal 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTAGTGATAGCAAAAGAGAAAAAAAGTTATAGATAAAAATATAGGTTACTTAAAGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.00545
89.50
50.65%
24.68%
17.41%
                                                                                                         equals
                                   a,
                                                                                                           ø
                                                                                                                                                                                ρ,
                                                                                                                                                                       ٠ ٢٠
                                   ŗ
                                                                                                           ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    removed :
                                   Ω
                                                                                                           g
                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
                                       õ
                                                                                                           9
                                                                                                                                                                                  e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  File Wrapper or PALM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1104
19
20
35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25
```

Fra

```
NAME/KEY: misc feature
LOCATION: (65309)..(65309)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (40808)..(40810)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc feature LOCATION: (36636)..(36636) OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (36551)..(36551)
OTHER INFORMATION: n equals
                              NAME/KEY: misc feature
LOCATION: (65313)...(65313)
OTHER INFORMATION: n equals
                                                                                                               NAME/KEY: misc feature
LOCATION: (55369)..(55369)
OTHER INFORMATION: n equals
                                                                                                                                                         NAME/KEY: misc feature
LOCATION: (51805)..(51805)
OTHER INFORMATION: n equals
                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (51786)..(51786)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                           NAME/KEY: misc_feature
LOCATION: (51602)..(51602)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                   NAME/KEY: misc feature LOCATION: (51334)..(51334) OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (47036)..(47036)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc feature
LOCATION: (45593)..(45593)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc_feature
LOCATION: (44975)...(44975)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
NAME/KEY: misc_feature
LOCATION: (44905)...(44905)
OTHER INFORMATION: n equals
   LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (45732)..(45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (44416)...(44416)
COTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COCATION: (36543)..(36543)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
NAME/KEY: misc_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCATION: (29298)..(29298)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                        INFORMATION: n equals
misc_feature
(80024)..(80024)
                                                                                                                                                                                                                                                                                                                                                                                  .. (45732)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (36543)
                               ā
                                                                         a,
                                                                                                                  a,
                                                                                                                                                           gi
V
                                                                                                                                                                                                    a
                                                                                                                                                                                                                                             a,
                                                                                                                                                                                                                                                                                       a,
                                                                                                                                                                                                                                                                                                                              a,
                                                                                                                                                                                                                                                                                                                                                                        a,
                                                                                                                                                                                                                                                                                                                                                                                                                 a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                           a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a,
                                                                                                                 ŗ
                                                                                                                                                                                                    Ţ
                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ή,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŗ
                               Ĺ
                                                                         ţ
                                                                                                                                                           Ĺ
                                                                                                                                                                                                                                             Ļ
                                                                                                                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                               Q
                                                                         ıΩ
                                                                                                                Q
                                                                                                                                                           Q
                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                              ω
                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                                                                                                                or
                                õ
                                                                                                                  or
                                                                                                                                                            õ
                                                                                                                                                                                                      ů
                                                                                                                                                                                                                                              or
                                                                                                                                                                                                                                                                                       ç
                                                                                                                                                                                                                                                                                                                                                                         or
                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or
                                                                                                                                                           a
                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                               O
                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                a
                                                                         a
                                                                                                                  C
                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                        G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              O
```

```
OTHER INFORMATION: FEATURE:
NAME/KEY: misc_feature
NAME/KEY: misc_feature
NAME/KEY: misc_feature
NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FRATURE:
NAME/KEY: misc_feature
LOCATION: (102696)..(102696)
OTHER INFORMATION: n equals
                                                                               OTHER IN
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: n equals FEATURE:
REATURE:
NAME/KEY: misc_feature
LOCATION: (100091)..(100091)
OTHER INFORMATION: n equals
NAME/KEY: misc_feature
LOCATION: (145171)..(145171)
OTHER INFORMATION: n equals
                                   OTHER IN
                                           NAME/KEY: misc_feature
LOCATION: (145058)..(145058)
OTHER_INFORMATION: n equals
                                                                                       NAME/KEY: misc_feature
LOCATION: (142750)..(14
OTHER INFORMATION: n ec
                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (140398)..(140398)
OTHER INFORMATION: n equals
                                                                                                                                                                            FEATURE:
NAME/KEY: misc_feature
LOCATION: (139910)...(139910)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                           FEATURE:
NAME/KEY: misc_feature
LOCATION: (131360)..(131360)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (131340)..(1:
OTHER_INFORMATION: n e
                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY: misc feature
LOCATION: (122336)...(12
                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (122167)..(122167)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:

NAME/KEY: misc_feature
LOCATION: (121344)..(121344)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (120038)..(120038)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc feature
LOCATION: (119924)..(119924)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (119750)..(119750)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (105121)..(1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: (117136)..(117136)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION: (105121)..
OTHER INFORMATION: n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (107248)..(10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION: n
                                                                                                                                                                                                                                                                      .(131340)
n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (105121)
equals
                                                                                          equals
                                                                                                     (142750)
                                                                                                                                                                                                                                                                                                                   equals
                                                                                                                                                                                                                                                                                                                              (122336)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (107248)
   ā,
                                             ā
                                                                                          þ
                                                                                                                                      ø
                                                                                                                                                                               a
                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                       Ġ,
                                                                                                                                                                                                                                                                                                                  a,
                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                         a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a,
   ŗ
                                              ۲
                                                                                                                                      ŗ
                                                                                                                                                                                                                           Ĺ
                                                                                                                                                                                                                                                                                                                  Ĺ
                                                                                                                                                                                                                                                                                                                                                             ţ,
                                                                                                                                                                                                                                                                                                                                                                                                         Ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ĺ
  Ø
                                             ω
                                                                                         ω
                                                                                                                                     ω
                                                                                                                                                                               ω
                                                                                                                                                                                                                           ω
                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
   8
                                               0
R
                                                                                          or
                                                                                                                                      or
                                                                                                                                                                                  or
                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                              or
                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                     or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 မ္
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or
                                                                                                                                                                                  α
                                                                                                                                                                                                                                                                                                                   Ω
                                                                                                                                                                                                                                                                                                                                                              α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
Search completed: October 6,
Job time: 5167.67 secs
                                          밁
                                                             Ś
                                                                                 밁
                                                                                                    8
                                                                                                                           밁
                                                                                                                                            र्
                                                                                                                                                                US-10-089-514-4 (1-103) x US-10-329-670-1 (1-1830121)
                                                                                                                                                                                                                                          Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
NAME/KEY: misc_feature
LOCATION: (147197)...(147197)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                       FEATURE:
NAME/KEY: misc_feature
LOCATION: (152530)..(152530)
                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (152500)..(152500)
CTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (150841)..(150841)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURE:

NAME/KEY: misc_feature

LOCATION: (145942)..(145942)

OTHER INFORMATION: n equals a, t,
                                       1370586 TATGCGCCAGAACGTGAAATAGCAATGCTCCAAGCACGT 1370624
                                                                               47
                                                         MetGlnProGlyArg---ValSerLeuValLysAspArg 58
                                                                                                                                                                                        247
88.50
67.92%
32.08%
17.22%
         2005, 01:50:33
                                                                                                                                                                                                                                                                                                                                                 Ġ,
                                                                                                                                                                                                                                                                                                                                                                                         a,
                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                Q
                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                         ဝူ
                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                         ი
                                                                                                                                                                                                                                                                                                                                                                                                                                    ი
                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                          1830121
17
19
16
```

(Uspło) Angle Blank (Uspło)

```
Run
                                                                                                                                              Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                               -MODELL=frame+ p21.model -DEV=x1h
-MODELL=frame+ p21.model -DEV=x1h
-MODELL=frame+ p21.model -DEV=x1h
-Q=/cgn2 1/USPTO_spool_h/US10089514/runat_04102005_105744_8043/app_query.fasta_1.1621
-Q=/cgn2 1/USPTO_spool_h/US10089514/runat_0.1 -LLOOPCL=0 -LOOPEXT=0
-UNITS=bits -START=1 -ENDE-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLENO -MAXLENO=200000000
-USER=US10089514_eCGN_1 1_6050_grunat_04102005_105744_8043 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Command line parameters:
 a
                         0.0
                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95:
                                                                    79.
79
                                                                                                                                              Score
                              77.5
77

    No. is the number of results predicted by chance to have
re greater than or equal to the score of the result being pr
is derived by analysis of the total score distribution.

                                                                                                                 88
 76
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq length:
seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xgapop 10.0 , y
Ygapop 10.0 , y
Fgapop 6.0 , F
Delop 6.0 , F
                                                                                                                                            Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-4
514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         October
                                                                                                                                                           Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 34239544 seqs, 19032134700 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MTEQNELQRLRAELDALDGT.....MCRVEDLVMSRESLTAEDRR
16.6
16.0
15.5
15.4
15.2
15.1
15.1
14.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Copyright
                                                                                                                                                                                                                                                                          gb_est5:*
gb_est6:*
gb_gss1:*
gb_gss2:*
                                                                                                                                                                                                                                                                                                                                   gb_est2: *
gb_htc: *
gb_est3: *
gb_est4: *
                                                                                                                                                                                                                                                                                                                                                                                             gb_est1:*
                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5, 2005, 09:03:04 ; Search time 1126.79 Seconds (without alignments) 3479.464 Million cell updates/sec
 806
846
600
471
431
509
592
692
913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                              BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xgapext
Ygapext
Fgapext
Delext
             CL688507
CN822873
BZ895453
AW637288
CL674789
BM326074
BH454175
BU915943
                                                                                                                                              IJ
                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7.0
CL688507
CN822873
BZ895453
AW637289
CL674789
BM326074
BH454175
BU915943
CN894351
                                                                                                                                              Description
                         7 PRI0149c
3 Oa splbn
3 NaRP11 01
8 b156h07.w
9 PRI0113a
4 PIC1 65 E
8 BOGIX86TF
                                                                                                                                                                                                                               printed,
AGENCOURT
010625AAY
                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                    JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 1
CL688507
LOCUS
                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      იიი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                            source
                                                                                                                                                                                                                                                                                                                                                                               CL688507
```

5	44	43	42	41	40	39	38	37	36	35	34	ω u	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
	'n	72.5	2	'n	'n			73	73	73	73	73	~	•	•	•	•	•	•	73.5	•	•	•	74	74	74	74	74	74	74	74	74	75	75	75
4.	٠.	14.1	4.	4.	4.	4.	Α.	4.	۴.	٠.	٠.	4.	4.	٠	4.	4.	٠.	4.	4.	4.	۵.	4.	4.	٠.	4.	4.	4	۵.	٠.	٠.	Α.	4.	4.	4.	.4.
ω	\mathbf{r}	674	7	9	w	0	σ	\mathbf{r}	0	8	ð	9	S	0	N	9	8	σ	ω	N	9	σ	9	J	J	w	\vdash	ຫ	ω	w	N	\vdash	ū	4	N
9	N	_	4.	μ	N	۲	7	7	7	æ	œ	8	œ	4	9	7	7	7	7	7	7	ш	9	9	œ	ш	9	ഗ	N	7	δ	σ	œ	œ	4
06UH	9371	1068	35545	1135	49479	80408	031207	70674	8800	364	5051	7649	3463	4327	4062	3691	3735	3741	3806	41	2972	4121	6152	2775	7799	6091	0879	0186	8322	5765	0282	277	4886	BH654655 '	9556
586	9371	10688	5545	11359	9479	0408	1207	0674	8800	43642	H25051	7649	93463	34327	4062	3691	3735	741	3806	3341	972	121	06152	2775	57799	86091	0879	186	E58322	85765	6028	60277	H24886	BH654655	M59556
T3 end of	AT02044.5	5 GH06135.5	GM30880.5	GH09960.5	AT03534.5	GM12763.5	EK227832.	CCAC240TO	CCAF289TO	BOHJO44TF	BOGAU29TF	BOGGA03TF	odf87c04.	HVSMEG000	Ynhw1236	WS01225.B	WS01227.B	WS01227.B	WS0125.B2	WS01210.B	PH1_24_H0	LD25234.5	MA1-0020P	OR_BBa005	msh2 5671	w156b07.x	OR BBa003	6	YM-	YM8		RK354A2F1	BOGAM09TF	BOHTE10TF	7000687

ALIGNMENTS

Max-Planck-Institute for Developmental Biology Spemannstr. 37-39, Tuebingen D-72076, Germany Tel: 00497071601371 Pristionchus pacificus Nucleic Acids Res. 32 (1), D421-D422 (2004) Contact: Sommer RJ CL688507 806 bp DNA linear GSS 09-JUL-2004 PRI0149c_F10_2 - PRI0149c.BR (806) Mixed stage fosmid library of P. pacificus var. California Pristionchus pacificus genomic, genomic Srinivasan, J., Otto, G.W., AppaDB: an AcedB database Pristionchus pacificus Eukaryota; Metazoa; Nematoda; Chromadorea; Diplogasterida; Neodiplogasteridae; Pristionchus. Class: fosmid ends.
Location/Qualifiers Email: ralf.sommer@tuebingen.mpg.de This library was generated at Caltech, sequenced at Vancouver, Canada. Evolutionary Biology CL688507.1 GI:50197585 Fax: 00497071601498 survey sequence. Pristionchus pacificus (bases 1 to 806) /organism="Pristionchus /mol_type="genomic DNA" Kahlow, U., Geisle for the nematode pacificus" Geisler,R. and Sommer,R.J. matode satellite organism Pasadena, USA and

```
RESULT 2
CN822873/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                Query
                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
    DB:
                                                          Score:
                                                                                                                    ORIGIN
                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-4 (1-103) x CL688507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     No
                                                                         No . :
                 Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oa spiln 02E15_M13reverse Sheep
aries cDNA clone Oa_splbn_02E15
CN822873
                                                                                                                                                                                                                                                                                         Veterinary Biomedical Sciences University of Edinburgh Summerhall Square, Edinburgh, 1 Email: j.hopkins@ed.ac.uk Plate: 02 row: E column: 15
                                                                                                                                                                                                                                                                                                                                                             1 (bases 1 to 846)
Gossner,A. and Hopkins,J.
Ovine spleen\brain cDNA library
Unpublished (2004)
Contact: J Hopkins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CN822873 - - CN822873.1 GI:47950942 EST.
                                                                                                                                                                                                                                                              Seq primer: Ml3reverse High quality sequence :
                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa;
Mammalia; Eutheria;
Caprinae; Ovis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ovis aries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ovis aries (sheep)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTTATGTTCCGGAGCGCGAGGCATCTATGTTGGCCTCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetMetGlnProGlyArg---ValSerLeuValLysAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGAAGCGTCTGGAACTGGTTGCTGAAGTGGGCGAGGTGAAAAGCCGCTTTGGACTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAATTGACCGCATTACGCGATCAAATTGATGAAGTCGATAAAGCGCTGCTGAATTTATTA
                                                                                                                                                                                                                                quality sequence start: 4 quality sequence stop: 549
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /strain="California"
/db_xref="taxon:5416"
/clone_ib="Mixed stage fosmid library of P.
var. California"
                                                                                                                               /clone="0a_splbn_02E15"
/clone_lib="Sheep_spleen\brain_pSport1 library"
/note="Vector: pSport1"
                                                                                                                                                                          /mol_type="mRNA"
/db_xref="taxon:9940"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Vector: pEpifos-5 Fosmid vector"
                                                                                                                                                                                                     organism="Ovis aries"
           1.94
82.00
46.30%
29.63%
15.95%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.608
85.50
59.26%
35.19%
16.63%
                                                                                                                                                                                                                       .846
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chordata; Craniata; Vertebrata; Euteleostomi; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-806)
Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels:
                                                                                                                                                                                                                                                                                                                        EH9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA linear 1 spleen\brain pSport1 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                     1QH.
  32
32
18
28
30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            806
19
13
21
1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EST 02-JUN-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   library Ovis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pacificus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25
```

```
RESULT 3
BZ895453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                        Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
 US-10-089-514-4
                                             Query Match:
                                                                                            Score:
                                                                                                            Pred. No.:
                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-4 (1-103) x CN822873 (1-846)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Focus
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           632 GTCGATCTTGCGCTCGCGCAGGACCGGGTCGATCTTCATGTACTGCAGCGTGTTGCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       689 CAGCGCGATCAGCAGCGCGAACAGGCCCACCGGCCACCA---GATGGGGGAATTCCACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 65 AspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            38 TyrLysSerArgHisGlyVal-----ProMetMet---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Low-pass Sequencing for Microbial Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Goo,Y., Roach,J., Glusman,G., Baliga,N.S., DasSarma,S., Ng,W.V. and Hood,L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Natrialba asiatica
Natrialba asiatica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NaRP11_0120 Na p
survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4 GlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeu-----
                                                                                                                                                                                                                                                                                                                                  Class: shotgun.
                                                                                                                                                                                                                                                                                                                                             Email: ygoo@systemsbiology.org
Seq primer: M13 Forward
                                                                                                                                                                                                                                                                                                                                                                            Tel: 206 732 1412
Fax: 206 732 1299
                                                                                                                                                                                                                                                                                                                                                                                                      Institute for Systems Biology
1441 North 34th Street, Seattle,
                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Goo Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Halobacteriaceae; Natrialba.
1 (bases 1 to 600)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BZ895453.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BZ895453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Archaea; Euryarchaeota; Halobacteria; Halobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATCTGCTCGAACAGCTTGTCGTA 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CysArgValGluAspLeuValMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTAGCCGAACATCCAGGGCGCGCGTCGCGCTG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATCTGGGTCGGCTTGGCGACCCACTGCTGGTAGGCGCCGCCCGACATCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----LeuAspThrValArgArgArgIleAspLeuGlyVal-----ArgIleAlaArg
(1-103)
                                                                                                                                                                     /clone_lib="Na pUC18 Library"
/note="Vector: pUC18; Site_1: SmaI; A shotgun
constructed from Natriabba asiatica genomic DN
pUC18/SmaI/BAP plasmid"
                                                                                                                                                                                                                                    /strain="ATCC 700177"
/db_xref="taxon:64602"
                                                                                                                                                                                                                                                                 organism="Natrialba asiatica"
|mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:33345929
×
                                2.78
79.50
51.06%
23.40%
15.47%
 BZ895453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          600 bp DNA linear GSS 30-JUL-2003 pUC18 Library Natrialba asiatica genomic 5', genomic
 (1-600)
                                             Conservative: Mismatches: Indels:
                                                                                          Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     92
                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                           WA 98103, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Comparative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTTTCGGGACCGTCGTCCAGGAACTT
                             600
22
26
41
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Deutsch, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----CACGATGGC
                                                                                                                                                                                       DNA using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pan, M.,
                                                                                                                                                                                                   library was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21
```

```
RESULT 4
AW637288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PUBMED
                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                             Email: black009@niehs.nih.gov
Clone is available through Rese.
Parkway, Huntsville, AL 35901
phone 800-533-4363 ext.cdna, fi
cdna@resgen.com
DNA Sequencing and analyses pe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Perry J. Blackshear
Office of Clinical Research and Laboratory of Signal Transduction
National Institute of Environmental Health Sciences
A2-05 NIEHS, 101 Alexander Drive, Research Triangle Park, NC 2770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Blackshear, P.J., Lai, W.S., Thorn, J.M., Kennington, E.A., Staffa, N.G. Jr., Moore, D.T., Bouffard, G.G., Beckstrom-Sternberg, S.M., Touchman, J.W., Bonaldo, M.F. and Serses, M.B. The NIEHS xenopus maternal EST project: interim analysis of the first 13,879 ESTs from unfertilized eggs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xenopus laevis
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Emphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AW637288 471 bp mRNA linear bl56h07.wl Blackshear/Soares normalized Xenopus egg laevis cDNA clone PBX0056H07 5', mRNA sequence.
                                                                                                                                                                                                                               Plate: 0056
                                                                                                                                                                                                                                             FORWARD: TGTAAAACGACGGCCAGT
BACKWARD: CAGGAAACAGCTATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                            Tel: 919 541-4899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Xenopodinae; Xenopus; Xenopus.

1 (bases 1 to 471)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AW637288.1 GI:7394396
                                                                                                                                                                                                                                                                                  PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xenopus laevis (African clawed frog)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAACTGAACAAAGTTGAG-----CAGCGCGAGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluMetCysArgValGluAspLeuValMetSerArgGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACCTGCCGACGACGAGGAGGAGCATGATGAACAGGTAATGGAACGAGCGGGGCAGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCAGAGCAGTTCGACGTCGACGCGAATCTGGTGAAGGCGATCTTTCGGTTATTGATC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThr 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyr 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAACTGATCGCGCAGCGAACCTACGTCGCGGATACGATTGCAGCGGTCAAAGACGAGAAG 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHis 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                primer: T7 primer.
                                                                                                                                                                                                                                                                                                                                                                                                                           919 541-4571
                                                                                                                                                                                                                                                                                                 Intramural Sequencing
                /tissue_type="unfertilized egg"
/cell_type="unfertilized egg"
/dev_stage="unfertilized egg"
/lab_host="DH10B"
                                                                                                      /organism="Xenopus laevis"
/mol_type="mRNA"
/db_xref="taxon:8355"
/clone="PBX0056H07"
                                                                                                                                                                                            location/Qualifiers
                                                                                                                                                                                                                                               CAGGAAACAGCTATGACC
                                                                                       'sex="female"
                                                                                                                                                                                                                               row: H column:
_lib="Blackshear/Soares normalized Xenopus
                                                                                                                                                                                                                                                                                                                                                                                     Research Genetics, Inc.,
                                                                                                                                                                                                                                                                                                  performed by National Institutes of Center (NISC).
                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                    fax 256-536-9016 att:cdna, email
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST 26-APR-2001
library Xenopus
                                                                                                                                                                                                                                                                                                                                                                                       2130
                                                                                                                                                                                                                                                                                                                                                                                     Memorial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NC 27709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22
                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                   RESULT 5
CL674789
                                                                                                                                                                                                                                                                              ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                    COMMENT
                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                      Pocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                        JOURNAL
                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              70
```

```
library"
/note="Vector: pT7T3-Pac; Site_1: EcoRI; Site_2: NotI;
/note="Vector: pT7T3-Pac; Site_1: EcoRI; Site_2: NotI;
PolyA-selected mRNA was prepared from unfertilized Xenopus
laevis eggs. The library was constructed in the vector
pT7T3-Pac as described in Bonaldo, M.F., Lennon, G. and
Soares, M.B. 'Normalization and subtraction: two
approaches to facilitate gene discovery', Genome Research
6:791-806, 1996. The first strand synthesis used a
NotI-dT18 primer; double stranded cDNAs were ligated to
EcoRI adapters, digested with NotI, and directionally
cloned into the NotI and EcoRI-digested pT7T3-Pac vector.
The library contained approximately 7.2 x 10 '5
recombinants, with average insert sizes of 1-1.5 kb."
```

US-10-089-514-4 (1-103) x AW637288 (1-471) Best Local Similarity: 292 CCGGATGTGGCGCAG 130 ATCAGAATGGCTTCCAGTGCAGGCATCGACTGGGAGAGG-----AAAATTAAAGCCGAA 184 CGGCAGAGGGCAGAGAGAGAGCTGCAGAACACAGGATGTCTCTAAATGCTCTGGAAAAC 56 LysAspArgAlaAlaArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsn 76 LeuTyrAspVallleIleThrGluMetCysArgValGluAspLeuValMetSerArgGlu 36 AlaArgTyrLysSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuVal 21 LeuleuAspThrValArgArgArgIle------AspLeuGlyValArgIle 10 AGGTCTGAAAATAAAAAGCTGAAAGGCCAGCTCTCACAGGCTGAGCTGACCCACAAGAGC Evolutionary Biology
Max-Planck-Institute for Developmental Biology
Spemannstr. 37-39, Tuebingen D-72076, Germany
Tel: 00497071601371
Fax: 00497071601498 CL674789 431 bp DNA linear GSS 09-JUL-2004 PRI0113a_E03_2 - PRI0113a_BR (431) Mixed stage fosmid library of P. pacificus var. California Pristionchus pacificus genomic, genomic Pristionchus pacificus Eukaryota; Metazoa; Nematoda; Chromadorea; Diplogasterida; Neodiplogasteridae; Pristionchus: CL674789 4 GlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr------Contact: Sommer RJ Pristionchus pacificus Nucleic Acids Res. 32 (1), D421-D422 AppaDB: an AcedB database Srinivasan, J., Otto, G.W., Pristionchus pacificus CL674789.1 GI:50178309 survey sequence. SerLeuThrAlaGlu TTGAGGCAG---(bases 1 to 431) 2.4 79.00 50.48% 26.67% 15.37% 306 GAGAATTGCCGGTTATCGGAACTCCTTCAGACGCAAGAG Kahlow, U., for the Length:
Matches:
Conservative:
Mismatches: Gaps: Indels: nematode satellite organism (2004) Geisler, R. and Sommer, R.J. 47] 28 25 38 14 183 ន 69 95 243 75 20

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 6
BM326074/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
DB:
                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-089-514-4 (1-103) x CL674789 (1-431)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                  TITLE
                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                               383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21 LeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: ralf.sommer@tuebingen.mpg.de
This library was generated at Caltech, Pasadena, USA and end
sequenced at Vancouver, Canada.
Seq primer: T7
                                            Unpublished (2002)
Contact: Cordonnier-Pratt MM
Contact: Cordonnier Pratt MM
Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271,
Tel: 706 542 1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                             Cordonnier-Pratt, M.-M., Gingle, A., Sudman, M. and Pratt, L.H.
An EST database from Sorghum: plant
                                                                                                                                                                                                                            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD clade; Panicoideae; Andropogoneae; Sorghum.
                                                                                                                                                                                                                                                                             Sorghum bicolor (sorghum)
                                                                                                                                                                                                                                                                                                                 EST
                                                                                                                                                                                                                                                                                                                              BM326074
BM326074.1 GI:18065211
                                                                                                                                                                                                                                                                                                                                                         PIC1_65_E01.b1_A002 Pathogen-infected compatible 1 (PIC1) bicolor cDNA, mRNA sequence.
                Email: mmpratt@uga.edu
                                                                                                                                                 pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATT 385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ile 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGCTCGGTAAAGCGCACCATCTGGACGCCCATTACATTACTCGCCTGTTCCAGCTCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGACATCGGAAAAACCCCGTTACTGGCGCTGCGAGAGAAAATCAGCGCGCTGGATGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCTCGCATCGCCCGGTACGTGATTTTTTTTTGTGAACGCGATTTACTGGAAAGATTATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTATTAGCATTACTCGCAGAGCGGCGCGAACTGGCCGTCGAGGTGGGAAAAGCCAAACTG 262
                                                                                                                                                                                                                  (bases 1 to 509)
                                   706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       fosmid ends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          var. California"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="taxon:54126"
/clone_lib="Mixed stage fosmid library of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /mol_type="genomic DNA"
/strain="California"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Vector:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Pristionchus"
   have
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.95
78.00
45.68%
28.40%
15.18%
   been
   trimmed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pEpifos-5
                                                                                                                                                                                                                                                                                                                                                                                                509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches:
Conservative:
 ç
                                                                                                                                                                                                                                                                                                                                                                                               å
                                                                                                                                                               plants infected
 exclude
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pacificus'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Fosmid vector"
                                                                                                                                                                                             Fang, G.C., Dean, R., Wing, R.,
                                                                                                                                                                                                                                                                                                                                                                                               mRNA
PolyA, vector, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         431
23
14
44
0
                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                               with
                                                                                                                                                               р
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۳.
                                                                                                                                                                                                                                                                                                                                                                                               EST 04-JAN-2002
                                                                                                                                                               compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pacificus
regions
                                                                USA
                                                                                                                                                                                                                                                                                                                                                                            Sorghum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             322
```

DB:

Ś

밁 Ş 밁

멍 Ş 밁

ACCESSION

survey sequence. BH454175

Ś

밁 S 밁 Ş

```
ВН454175/с
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-4 (1-103) x BM326074 (1-509)
     DEFINITION
                              FOCUS
                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361 CAAAACGACGTCCTCCGCGGCAAGCACCTCCGACAGCACCGCGTCGGAGTCGATGATGTC
                                                                                                                                                                                                                        166
                                                                                                                                                                                                                                                                                                                           226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301 TTTCTCGGGCGGCTCGACGACGTCCTTCTCAGGCGACGACGACGCCGTTCAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37
                                                                                                                                                                          95
                                                                                                                                                                                                                                                                           75
                                                                                                                                                                                                                                                                                                                                                                    57 AspArgAlaAlaArgTyrAlaAlaAspHis-----GlyLeuAspGluSerPheLeuVal 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19 -----GlyThrLeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAla
BH454175 692 bp DNA line BOGIX86TF BOGI Brassica oleracea genomic clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4 GlnAsnGluLeuGlnArg------LeuArgAlaGluLeuAspAlaLeuAsp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       below Phred quality 16. The threshold for highest quality sequence is 20. Three-prime sequences, which are obtained with PolyTMix or T7 sequencing primer, are presented as the reverse complement. Seq primer: JEN REV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      High quality sequence stop: 433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POLYA=No.
                                                                                                                                              GluSerLeuThrAlaGluAspArgArg
                                                                                                                                                                                                                                                    AsnLeuTyrAspValIleIleThrGluMetCysArgValGluAspLeuValMetSerArg
                                                                                                                                                                                                                           CGGCTCGACGACGTCCTTCTCAGG----
                                                                                                                                                                                                                                                                                                                           GAGAACCGCCGACTCGACGACGCCGAGCACCGCGTCGGAGTCGATGATGTCTTTCTCAGG 167
                                                                                                                            ACGGCGACCATCGACGAGAACCGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgTyrLysSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone lib="pathogen-infected compatible 1 (PIC1)"
/note="Vector: pBluescript II SK(-) from Lambda Zap II;
Site I: Xho1; Site 2: EconI; Four-week-old sorghum
seedlings were sprayed with spore suspension prepared from
3-week-old FRM42I, a sorghum isolate of the anthracnose
pathogen Colletotrichum graminicola. Inoculated plants
were kept in a 25 C dark growth chamber with 100% relative
humidity for 24 hr, followed by 12/12 hr of light/dark
cycle at 25 C with 90% relative humidity for another 24
hr. All leaves were harvested and quick frozen with 11quid
nitrogen and stored in a -80 C freezer. The library was
made from poly-A RNA in the cloning vector lambda ZAP II.
Clones to be sequenced were prepared by mass excision.
WARNING: while most or all ESTs are expected to derive
from the host plant, no effort was made to eliminate ESTs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Colletotrichum graminicola"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /mol_type="mRNA"
/cultivar="BTx623"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /dev_stage="4-week-old seedlings infected with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tissue_type="Leaves"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  db_xref="taxon:4558"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     organism="Sorghum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.24
77.50
44.04$
28.44$
15.08$
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bicolor"
                                                                                                                            89
                                                                                                                                                                                                                           CGACTCGACGACGCCGTTCACGGCCGA 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       509
31
17
34
37
                                                                                                                                                                                                                                                                                                                                                                                                                          GGCAGAACGGCGACCATCGAC
  linear GSS
                            12-DEC-2001
                                                                                                                                                                                                                                                                           94
                                                                                                                                                                                                                                                                                                                                                                                                                          227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        248
```

```
RESULT 8
8U915943
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                   밁
                                                                                                                        S
                                                                                                                                                       밁
                                                                                                                                                                                 გ
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-4 (1-103) x BH454175 (1-692)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
     ACCESSION
                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    No:
                                                                                                                                                       141
                                                                                                                                                                                                             192
                                                                                                                                                                                                                                                                    249
                                                                                                                             100
                                                                                                                                                                                                                                                                                                                         303 GCTCGACGCGACGAGTTT-----AAAGCTGCGCTGGATTCGTCTCGACGAACCGTCCGC 250
                                                                                                                                                                                                                                                                                                                                                                                363 CAACTGAACGAGTTGAGGGCTGATCTGCAGAGGCTTCGACGGGGTGATGACCCGCACCGCT
                                                                                                                                                                                  86
                                                                                                                                                                                                                                                                                               46
                                                                                                                                                                                                                                      66 HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys 85
                                                                                                                                                                                                                                                                                                                                                     26
                                                                                                   81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BH454175.1
GSS
913 bp
AGENCOURT 10492829 NICHD XGC OO1
IMAGE:6642739 5', mRNA sequence.
BU915943
                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Whole genome shotgun sequencing Unpublished (2001) Other_GSSs: BOGIX86TR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Seq primer: TF
Class: sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: cdtown@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Town
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Brassica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Chris Town
                                                                                                                                                                                 ArgValGluAspLeuValMetSerArgGluSerLeuThrAla------
                                                                                                                                                                                                                                                                    GAGCTTGAACAGAAAAACACCGATCTCGAGAGTGAGAGGGCTTCA---CTCGCTGCCCCG
                                                                                                                                                                                                                                                                                           MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp
                                                                                                                                                                                                                                                                                                                                                  ArgargargIleaspLeuGlyValargIlealaargTyrLysSerargHisGlyValPro
                                                                                                                                                                                                                                                                                                                                                                                              GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal
                                                                                                   ATTCGTTCTCGAGAGGATCGTCGG
                                                                                                                                                       AGAGAAAGGGGGAGAGTAGAGGCCGAAAATGGCCGCCAAGGCTAATCGTTGCCTTTGCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 692)

(bases 1 to 692)

wn,C.D., Van Aken,S., Utterback,T., Koo,H. and Fra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Medical Center Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oleracea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="BOGI"
/note="Vector: pHOS1; Site_1: BstXI; 2-3
genomic DNA inserted into pHOS1 using Bst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   clone="BOGIX86"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               db_xref="taxon:3712"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             strain="TO1000DH3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Brassica oleracea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7.27
77.00
42.59%
30.56%
14.98%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:17639886
                                                                                                                                                                                                             -GAGCGAGAGATGAAACGTCTGAGAGACTCCAGAATCTTGGAGGTGACG 142
                                                                                                                          GluAspArgArg 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           haploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
Mismatches:
                                                                                                   58
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           provided
                              Xenopus laevis cDNA clone
                                            mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 692
33
13
46
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tom
                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and Fraser, C.M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Osborn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2-3 kb
BatXI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA.
                                            EST 17-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sheared linkers"
                                                                                                                                                                                                                                                                    193
                                                                                                                                                                                                                                                                                                                                                     45
                                                                                                                                                       82
                                                                                                                                                                                  99
                                                                                                                                                                                                                                                                                              65
                                                                                                                                                                                                                                                                                                                                                                                                         25
                                                                                                                        Ś
                                                                                                                                                     밁
                                                                                                                                                                               Ś
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                   밁
    ACCESSION
```

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
                                                                   CN894351/c
LOCUS
                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-4 (1-103) x BU915943 (1-913)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             No::
                                                                                                                                                      742
                                                                                                                                                                                                                                    682
                                                                                                                                                                                                                                                                                                                       628 ATCAGAATGGCTTCCAGTGCAGGCATCGACTGGGAGAGG-----AAAATTAAAGCCGAA
                                                                                                                                                                                                                                                                                                                                                                                                          568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          508 TTGTCTGAAAATAAAAAGCTGAAAAGGCCAGCTCTCACAGGCTGAGCTGACCCCACAAGAGC
                                                                                                                                                                                         76
                                                                                                                                                                                                                                                                 56 LysAspArgAlaAlaArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeuValAsn
                                                                                                                                                                                                                                                                                                                                                            36 AlaArgTyrLysSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                               21 LeuLeuAspThrValArgArgArgIle------AspLeuGlyValArgIle
027 bp
010625AAYA002796HT (AAYA) Royal (
domestica cDNA clone AAYA002796,
CN894351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Martha Rebert, Steven L. Klein, Ph.D.
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Agencourt Bioscience Corporation
Clone distribution: NCI-CGAP clone distribution information
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
plate: LLAM14228 row: j column: 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         High quality sequence stop: (
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tumor Gene Index
Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Xenopus laevis (African clawed frog) Xenopus laevis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BU915943.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       National Cancer Institute,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xenopodinae; Xenopus; Xenopus.
                                                                                                                                                    TTGAGG-----CCAGAGAATTGCCGGTTATCGGAACTCCTTCAGACGCAAGAG
                                                                                                                                                                                         LeuTyrAspValIleIleThrGluMetCysArgValGluAspLeuValMetSerArgGlu
                                                                                                                                                                                                                                    CGGCAGAGGGCAGAGAGAGGCTGCAGAACACAGGATGTCTCTAAATGCTCTGGAAAAC
                                                                                                                                                                                                                                                                                                                                                                                                          GTGCTGGATGGGATGAGGAAGGATCTCACAGCTCACTCAGGAGTTACACCAGAGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MetThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 913)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /tissue_type="oocytes"
/lab_host="NICHD (phage=resistant)"
/clone_lib="NICHD XGC_OO1"
/note="Vector: pCMV-SPORT6; Site_1: Not1; Site_2: Scloned_unidirectionally. Primer: Oligo dT. Average size 2.2 kb. Constructed by Life Technologies."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /mol_type="mRNA"
/db_xref="taxon:8355"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Xenopus laevis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   clone="IMAGE:6642739"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . .913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12
76.50
50.00%
25.00%
14.88%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:24097857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 666.
                     mRNA linear
Gala 126 DAFB fruit
, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  913
25
25
39
11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Project (CGAP),
                                               cortex Malus
                                                                   EST 04-JUN-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    can
                                                                                                                                                                                                                                                                                                                       683
                                                                                                                                                                                                                                                                                                                                                              55
                                                                                                                                                                                                                                                                                                                                                                                                          627
                                                                                                                                                                                                                                                                                                                                                                                                                                                 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                                                           95
                                                                                                                                                                                                                                    741
                                                                                                                                                                                                                                                                              75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ĕ
```

```
SOURCE
ORGANISM
                                                                                                                                                                           KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                               BM595564/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best L
Query
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
 COMMENT
                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-089-514-4 (1-103) x CN894351 (1-627)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                         ORGANISM
                                     TITLE
                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Match:
                                                                                                                                                                                                                                                                                                                                                                                                                      209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           266
                                                                                                                                                                                                                                                                                                                                                155 GACCAAGCAGGCCTCGCACGCCGAGTGGCCGCACGCGAGTACGCGCGGAATTGTGGACTC
                                                                                                                                                                                                                                                                                                                                                                                  50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 31 ---LeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValProMetMetGlnPro
              1 (bases 1 to 529)
Holt,R.A., Lin,J.-J., Murphy,S.D., Evans,C.A., Kraft,CCharlab,R., Collins,F.H., Venter,J.C. and Hoffman,S.L. Celera Anopheles gambiae EST project Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequencing Facility
The Horticulture and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Beuning,L., Bowen,J., Crowhurst,R., Gleave,A., Janssen,B., McArtney,S., Newcomb,R., Ross,G., Snowden,K., Walton,E. and Yauk,Y. HortResearch Apple EST Project Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids I; Rosales; Rosaceae; Maloideae; Malus.
                                                                                                                   Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
Neoptera; Endopterygota; Diptera; Nematocera; Culicoidea;
                                                                                                                                                                                             EST
                                                                                                                                                                                                                                             17000687475785
19600449718069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CN894351.1
EST.
                                                                                                                                                       Anopheles gambiae
                                                                                                                                                                         Anopheles gambiae (African malaria mosquito)
                                                                                                                                                                                                           BM595564.1 GI:18891426
                                                                                                                                                                                                                               BM595564
                                                                                                                                                                                                                                                                                 BM595564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: est@hortresearch.co.nz.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Malus x domestica
                                                                                                      Anopheles.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Malus x domestica (cultivated apple)
                                                                                                                                                                                                                                                                                                                                                                         GlyArgValSerLeuValLysAspArgAlaAlaArg---TyrAlaAlaAspHisGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArgArgArgIleAsp
                                                                                                                                                                                                                                                                                                                                                                                                                      GAGCTGGGTGCACGC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGAGAGGAGGTCGATGTTCTT---GGGCAGAGCTGTGGGTCCCTGCGGAGGGTACTTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 627)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Horticulture and Food Research Institute of New Zealand Mt Albert Rd, Mt Albert, Auckland, New Zealand 00 64 09 815 4201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gleave, A
Holt R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /dev stage="126 days after full bloom" /clone_lib="(AAYA) Royal Gala 126 DAFB fruit cortex" /notes="Vector: pBluescript SK(-); Library sequenced by Genesis Research & Development"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Malus x domestica"
/mol_type="mRNA"
/db_xref="taxon:3750"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tissue_type="Fruit cortex"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        clone="AAYA002796"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10.3
75.50
58.33%
43.33%
14.69%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:48280593
                                                                                                                                                                                                                                        A.Gam.ad.
5', mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                   529 bp mRNA linear EST 25-FEB-20
                                                                                                                                                                                                                                             sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          627
26
20
4
                                                               Kraft, C.L.,
                                                                                                                                                                                                                                                                            EST 25-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tt d
                                                                                                                                                                                                                                                                                                                                                  96
                                                                                                                                                                                                                                                                                                                                                                                                                     156
                                                                                                                                                                                                                                                                                                                                                                                                                                                     49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     210
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                        VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                 BH654655/c
                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                              COMMENT
                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                       FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-4 (1-103) x BM595564 (1-529)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                              JOURNAL
                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            377
                                                                                                                                                                                                                                                                                                                                                                                                                 278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            326 GTGGACCGGTGCCGGCGTCTCTGGGCATGGGC-----CACCTGCGAAGCCTC
                                                                                                                                                                                                                                                                                                                                                                                  59
                                                                                                                                                                                                                                                                                                                                                                                                                                             42 HisGlyValProMetMet------GlnProGlyArgValSerLeuValLysAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22 LeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Celera Genomics
45 w. Gude Dr., 1
Tel: 2404533151
Fax: 2404534580
                                                                                                                                                                                                                                      BOHTE10TF BO 2 3 KB Brassica genomic survey sequence.
BH654655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N
                                                                                                                                                                                                        BH654655.1
GSS.
             9712 Medical Center
                                              Contact: Chris Town
                                                            Whole genome shotgun sequencing 
Unpublished (2001)
                                                                                        1 (bases 1 to 644)
Town, C.D., Van Aken, S.,
                                                                                                                                      Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheo Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
                                                                                                                                                                         Brassica oleracea
                                                                                                                                                                                        Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Plate: NU010049VS row: J
Seq primer: M13 Reverse.
Tel: 301-838-3523
                                                                                                                         rosids; eurosids II; Brassicales; Brassicaceae; Brassica
                                                                                                                                                                                                                                                                                     BH654655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: HoltRA@celera.com
                                                                                                                                                                                                                                                                                                                                                    GTTGGGCGCTGGGTTCGAGAG
                                                                                                                                                                                                                                                                                                                                                                                                               CACGGAATGGTCGGTATGCTTGGTGCTCGTCCCGGACTGGGCGACCTCACCCGTGTTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCGCGAGTAATTCACTTCAGAGGCTG-----
                                                                                                                                                                                                                                                                                                                                                                                AlaAlaArgTyrAlaAlaAsp 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrGluGlnAsnGluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone lib="A.Gam.ad.cDNA.blood1"
/note="Vector: pSport1; Site 1: Sall; Site 2: Not1; Whole adult mosquitoes (mixed sex) frozen on liquid nitrogen 24 hours after human blood feeding: cDNA inserts >500 bp cloned directionally into pSport 1. Not 1 site is 3'. Clones available through the Malaria Research and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Reference Reagent Resource Center (www.malaria.mr4.org)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:7165"
/clone="19600449718069"
/dev_stage="Adult"
/lab_host="DH10b"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chromosome) "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Anopheles gambiae"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /mol_type="mRNA"
/strain="RSP-ST (Reduced
                                                                                                                                                                                                                         GI:18712878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9.76
75.00
47.76%
32.84%
14.59%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rockville,
              Drive,
                                                                           Utterback, T., Koo, H. quencing of Brassica
                                                                                                                                                                                                                                                                                                                                                    198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
              Rockville,
                                                                                                                                                                                                                                                                bp DNA 111 oleracea genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20850, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         susc.
              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -CTGGATGTGATTGACGGGCTTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       529
22
10
25
10
              20850,
                                                                          . and Fram
                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Permethrin
                                                                                                                                                                                                                                                                       clone
              USA
                                                                                        Fraser, C.M.
                                                                                                                                                                                                                                                                        BOHTE10,
                                                                                                                                                                                                                                                                                     GSS 19-FEB-2002
                                                                                                                                                        Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           - std.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41
                                                                                                                                                                                                                                                                                                                                                                                                                 219
                                                                                                                                                                                                                                                                                                                                                                                                                                              58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                    RESULT 12
BH248862
                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-089-514-4 (1-103) x BH654655 (1-644)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                     COMMENT
                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
0
:.
                                                                                                                                                                                                                                                                                                                                                                    147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        369
                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                          198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                255
                                                                                                                                                                                                                                                                                                                                                                                               86
                                                                                                                                                                                                                                                                                                                                                                                                                                                     66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46
                                                                                                                                                                                                                                                                                                               87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26 ArgArgArgIleAspLeuGlyValArgIleAlaArgTyrLysSerArgHisGlyValPro 45
                                                                                                                  Brassica oleracea
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
rosids; eurosids II; Brassicales; Brassicaceae; Brassica.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   σ
                                                                                                                                                                                                                  survey sequence.
BH248862
                                                  Whole genome shotgun sequencing Unpublished (2001) Other_GSSs: BOGAM09TR
                                                                   1 (bases 1 to 756)
1 (bases 1 to 756)
Town, C.D., Van Aken, S., Utterback, T., Koo, H. and Fraser, C.M.
                                                                                                                                                                                       BH248862.1
GSS.
                                                                                                                                                                                                                                          BOGAM09TF BOGA Brassica oleracea genomic clone
                                                                                                                                                                                                                                                         BH248862
                                                                                                                                                                            Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      :::|||
CAACTGAACGAGTTGAGGGCTGATCTGCAGAGGCTCGACGGGGTGATGACCCGCACCGCT 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluLeuGlnArgLeuArgAlaGluLeuAspAlaLeuAspGlyThrLeuLeuAspThrVal 25
                                                                                                                                                                                                                                                                                                               ATTCGTTCTCGAGAGGAGCGTCGG
                                                                                                                                                                                                                                                                                                                                                                                              ArgValGluAspLeuValMetSerArgGluSerLeuThrAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                  HisGlyLeuAspGluSerPheLeuValAsnLeuTyrAspValIleIleThrGluMetCys 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGCTTGAACAGAAAAACACCGATCTCGAGAGTGAGAGGGCTTCA---CTCGCTGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCGACGCGATGAGTTT-----AAAGCTGCGCTGGATTCGTCTCGACGAACTGTCCGC 256
                                                                                                                                                                                                                                                                                                                                                                    AGAGAAAGGGGGAGAGTAGAGGCGGAAATGGCCGAAGGCTAATCGTTGCCTTTGCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetMetGlnProGlyArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAsp 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                primer: TF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           il: cdtown@tigr.org
is from a doubled haploid
Medical Center Drive, 301-838-3523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sheared ends.
                                       Chris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="BO_2_3_KB"
/note="Vector: pHOS1; Site_1: BstXI; 2-3
genomic DNA inserted into pHOS1 using Bst
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /mol_type="genomic DNA"
/strain="TO1000DH3"
/db_xref="taxon:3712"
/clone="BOHTE10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Brassica oleracea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ocation/Qualifiers
                                                                                                                                                                                                     GI:17070730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12.5
75.00
43.52*
29.63*
14.59*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 644
                                                                                                                                                                                                                                                                                                                                                                                                                       -GAGCGAGAGATGAAACGTCTGAGAGACTCCAGAATCTCGGAGGTGACG 148
                                                                                                                                                                                                                                                                                                                                  GluAspArgArg
                                                                                                                                                                                                                                                         756 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                               64
            Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             provided by Tom Osborn.
                                                                                                                                                                                                                                                         DNA
           MD 20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
4
4
4
4
4
4
4
4
                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2-3 kb sheared
BstXI linkers"
                                                                                                                                                                                                                                          BOGAM09, genomic
            USA
                                                                                                                                                                                                                                                         GSS 26-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                    88
                                                                                                                                                                                                                                                                                                             RESULT 13
CD602770
LOCUS
                                                                             JOURNAL COMMENT
                                                                                                                                                                                                                                           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                              SOURCE
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                        TITLE
                                                                                                                                               AUTHORS
                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                    534
                                                                                                                                                                                                                                                                                                                                                                                                                        474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      294
                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                  51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         32
```

```
Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-4 (1-103) x BH248862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13 GluLeuAspAlaLeuAspGlyThrLeuLeuAspThrValArgArgArgIleAspLeu---
                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostel; Ostariophysi; Cypriniformes; Cyprinidae; Danio.

1 (bases 1 to 312)
Song, H. D., Wu, X.Y., Sun, X.J., Zhou, Y., Liu, T.X., Zhang, G.W., Sheng, Y., Chen, Y., Ruan, Z., Jiang, C.L., Fan, H.Y., Look, A.T., Zon, L.I. and Chen, Z.
                                                                                                                                                                                                                                                                                                                                                                                                          312 bp mRNA linear RK354A2F12.T3 Zebrafish Kidney Marrow cDNA library clone RK354A2F12 5', mRNA sequence.
State Key Lab for Medical Genomics Shanghai Institute of Hematology, Ruijin Hospital Shanghai Second Medical University
197 Rui Jin Road II, Shanghai 200025, P. R. China Tel: 86-21-64740490
                                                                                                   Gene Expression Profiling Unpublished (2003) Contact: Chen Z.
                                                                                                                                                                                                                                                                                                                       Danio rerio (zebrafish)
Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                       CD602770.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seq primer:
Class: shear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: cdtown@tigr.org
DNA is from a doubled haploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATATGCTATTTAACGCATTGGACGCTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAAGTTÄGCGTAACAAGCTTÄCGGGGGTCTÄAGATGCCGCAGCACGTAGAGCTCAACAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---GlyValArgIleAlaArgTyrLysSerArgHisGlyValProMetMetGlnProGly 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGGGATGTTGGGCAGACGAACTCGGCGGCGTCTTATGGTCACACCGAACAACCCACAGA 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAAGCCGAGGCATCCAACAAGACGATAATTGACGGTATCAAGAAACGCCTCGACTTGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgValSerLeuValLysAspArgAlaAlaArgTyrAlaAlaAspHisGlyLeuAspGlu 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerPheLeuValAsnLeuTyrAspValIle 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sheared ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="BOGA"
/note="Vector: pHOS1; Site_1: BstXI; 2-3 kb
genomic DNA inserted into pHOS1 using BstXI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:3712"
/clone="BOGAM09"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Brassica ole/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    strain="TO1000DH3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15.2
75.00
37.78%
22.22%
14.59%
                                                                                                                                                                                                                                                                                                                                                                                       GI:31784122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (1-756)
                                                                                                                                                   in the Zebrafish Kidney
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pròvided
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                756
20
14
34
22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Osborn
                                                                  Affiliated
                                                                                                                                                   Marrow Tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Danio rerio cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST 16-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                linkers"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sheared
                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31
```

```
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
CD602824
                                                                                                                                                                                                                                                                   SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  엉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-089-514-4 (1-103) x CD602770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity:
Query Match:
                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                        KEYWORDS
                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39 LysSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19
                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes; Cyprinidae; Danio.

1 (bases 1 to 325)

Song,H.D., Wu,X.Y., Sun,X.J., Zhou,Y., Liu,T.X., Zhang,G.W., Sheng,Y., Chen,Y., Ruan,Z., Jiang,C.L., Fan,H.Y., Look,A.T., Zon,L.I. and Chen,Z.

Gene Expression Profiling in the Zebrafish Kidney Marrow Tissue Unpublished (2003)
Contact: Chen Z.
State Key Lab for Medical Genomics
Shanghai Institute of Hematology, Ruijin Hospital Affiliated to
Shanghai Second Medical University
197 Rui Jin Road II, Shanghai 200025, P. R. China
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _
                                                                                                                                                                                                                                                                                                        CD602824.1 GI:31784176 EST.
                                                                                                                                                                                                                                                                                                                                                           RK354A4G12.T3 Zebrafish Kidney Marrow cDNA library Danio rerio clone RK354A4G12 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: zchen@stn.sh.cn
Seq primer: T3.
                                                                                                                                                                                                                                                                   Danio rerio
                                                                                                                                                                                                                                                                                    Danio rerio (zebrafish)
                                                                                                                                                                                                                                                                                                                                             CD602824
                                                                                                                                                                                                                                                                                                                                                                                                    CD602824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyThrLeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Leu 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGGATGGAGTGATTTCAGATATGGCCCAGACAAAGGAGTCCATTGTTAATGCTGCATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyraspValIleIleThrGluMetCysArgValGluAspLeuValMetSerArgGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaAlaArgTyrAlaAlaAsp-----HisGlyLeuAspGluSerPheLeuValAsnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGAGTCTTAAATCTGTCCAGCTCTACGGTCCCACCAACTTCTCACCCGTCATCAACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCACGAGCATTGAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTT 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTAGCCAGATACGCCGCCTCAGTAAAGGACGGATCGCAGTACTTCATCCTCCTCATCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /dev_stage="mature"
/clone lib="Zebrafish Kidney Marrow cDNA library"
/clone lib="Zebrafish Kidney; Pector: pBS-CMV; Site_1: XhoI;
/note="Togan: kidney; Vector: pBS-CMV; Site_1: XhoI;
Site_2: EcoRI; Total RNA was extracted from the kidney
tissues of mature zebrafish. The poly (A)+ RNA fraction
was separated from total RNA by oligo (dT) cellulose
chromatography. Library was initially constructed in the
lambdaZAP Express vector (Stratagene) and in vivo excise
into pBS-CMV vector."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /mol_type="mRNA"
/db_xref="taxon:7955"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone="RK354A2F12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Danio rerio"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.93
74.00
48.15%
29.63%
14.40%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (1-312)
                                                                                                                                                                                                                                                                                                                                                                                                    325 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GGAGTCATGGAGGCGTATTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                312
24
15
32
10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and in vivo excised
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          constructed in the
                                                                                                                                                                                                                                                                                                                                                                                                  EST 16-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                 CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36
                                                                                                                                                                                                                                                                                                                                                                             RESULT 15
CF857652
                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                              COMMENT
                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                               rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-4 (1-103) x CD602824 (1-325)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                 AUTHORS
TITLE
                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               157 ACGGATGGAGTTCAGATATGGCCCAGACAAAGGAGTCCATTGTTAATGCTGCATCT
                                                                                  Tyler,B.
Tyler,B. Not Published
Unpublished (2003)
Contact: Tyler B
                                                                                                                                                                                                                                                                                                                                                                                                                                          217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77 TyrAspValIleIleThrGluMetCysArgValGluAspLeuValMetSerArgGluSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59 AlaAlaArgTyrAlaAlaAsp-----HisGlyLeuAspGluSerPheLeuValAsnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39 LysSerArgHisGlyValProMetMetGlnProGlyArgValSerLeuValLysAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19 GlyThrLeuLeuAspThrValArgArgArgIleAspLeuGlyValArgIleAlaArgTyr 38
                                                                                                                                                                                                                                                                                                    CF857652 535 bp mRNA linear EST 31-OCT-2003 psMY002iF03r Agriculture Canada Phytophthora sojae EST project_sMY Phytophthora sojae cDNA clone sMY002F03 5, mRNA sequence.
                                                                        Tyler lab
                                                                                                                                                                                                                            Phytophthora sojae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tel: 86-21-64740490 Fax: 86-21-64743206
                                                                                                                                                                                                        Eukaryota; stramenopiles; Oomycetes; Pythiales; Pythiaceae;
                                                                                                                                                                                                                                               Phytophthora sojae
                                                                                                                                                                                                                                                                                    CF857652.1 GI:38097510
               1880 Pratt Dr., Bl
Tel: 540-231-7318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTAGCCAGATACGCCGCCTCAGTAAAGGACGGATCGCAGTACTTCATCCTCCTCATCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Leu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGAGTCTTAAATCTGTCCAGCTCTACGGTCCCACCAACTTCTCACCCGTCATCAACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCACGAGCATTGAT------GGAGTCATGGAGGCGTATTAC
                                                                                                                                                                   (bases 1 to 535)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 primer: T3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      zchen@stn.sh.
bmtyler@vt.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Organ: kidney; Vector: pBS-CMV; Site_1: XhoI; Site_2: EcoRI; Total RNA was extracted from the kidney tissues of mature zebrafish. The poly (A)+ RNA fraction was separated from total RNA by oilgo (dT) cellulose chromatography. Library was initially constructed in the lambdaZAP Express vector (Stratagene) and in vivo excised into pBS-CMV vector."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /dev_stage="mature"
/clone_lib="Zebrafish Kidney Marrow cDNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /mol_type="mRNA"
/db_xref="taxon:7955"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    clone="RK354A4G12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Danio rerio"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7.29
74.00
48.15%
29.63%
14.40%
                                   Blacksburg,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ġ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps:
                                     VA 24061, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         325
115
20
20
20
```

216 96 58

```
Percent Similarity:
Best Local Similarity:
Query Match:
Search completed: October Job time: 1132.79 secs
                                                                밁
                                                                                        Ś
                                                                                                                          밁
                                                                                                                                                S
                                                                                                                                                                                  망
                                                                                                                                                                                                               ર્
                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                 US-10-089-514-4 (1-103) x CF857652 (1-535)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                             375
                                                                                                                     321 CGACGGGGCCGT-----GTCCCCCGTCAAGAACCAGGGCAAGTGCGGCTCGTGCTGGAC 374
                                                                                                                                                                                 |||||||
264 GACGAGGAGAGCGGCCTGGAGTACGGCGAGGTGCCGAC---GGAGAAGGACTGGCGCGC 320
                                                                              58 ArgAlaAlaArgTyrAlaAlaAspHisGlyLeuAspGluSerPheLeu 73
                                                                                                                                        18 AspGlyThrLeuLeuAspThrValArgArg1leAspLeuGlyValArg1leAlaArg 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PCR PRimers
FORWARD: M13 reverse 17mer at 5' end
BACKWARD: M13 reverse 17mer at 5' end
Plate: 002 row: F column: 03
Seq primer: M13 reverse 17mer at 5' end
High quality sequence stop: 535.
                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Phytophthora sojae"
/mol_type="mRNA"
/db xref="saxon:67593"
/clone="sMY002P03"
/tissue_type="mycelium"
/cell_line="p6499"
/dev_stage="mycelium"
/clone_lib="Aggriculture Canada Phytophthora sojae EST
project_sMY"
/note="Vector: pBK-CMV; Site_1: EcoR1; Site_2: Xho1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                 13.6
74.00
51.79%
44.64%
14.40%
                                                           ----CTTCTCGACCACGGCTGCTCGAGAGCCACCTG 407
              5, 2005, 18:37:47
                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                            53
19
3
```

loigzu) Anolig Sepog zinj

```
Regult
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                       ი იიი
                                                                                 n
                                                                                                                     ററ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
             8
110
112
113
114
116
117
119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
       969
969
969
975.4
270.8
270.8
270.8
270.0
1128.4
1128.4
112.4
112.4
113.4
117.4
117.4
1117.4
       Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-5
969
1 atgagcggcttcccccgcag.....aaggcgagaaggaccgatga 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         October 4, 2005, 19:00:45; Search time 4451.25 Seconds (without alignments)
10548.289 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4708233 seqs, 24227607955 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenEmbl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gb_ov:
gb_pat:
gb_pl:
gb_pl:
gb_pr:
gb_ro:
gb_ro:
gb_ro:
gb_no:
gb_no:
gb_no:
gb_no:
gb_no:
gb_no:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
                               5 14159

5 14159

888

888

888

9 2888

9 2888

9 2888

9 4740

150715

1150715

1150715

1150715

1150715

1150715

1150715

1150715

1150715

1150715

1150715

1150715

1150715

1150715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 om: *
     BD178315
BD093916
AB116234
AF262220
A48324
AR198354
AR198354
AR198353
AR198353
SPU60417
AY714813
AY714813
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC149968
AC14968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9416466
BD178315 Transform
BD093916 Transform
AB116234 Streptomy
AF262220 Streptomy
AF324 Sequence 2
AR198354 Sequence 1
AR198353 Sequence 1
AR198353 Sequence 1
AR19813 Cercopith
AY714813 Cercopith
AY714813 Cercopith
AY714813 Cercopith
AY714816 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
AC149968 Strongylo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
```

		n			a		_	a	_	_				a	a		a	a		a	a	^			
45	44		42	41		39	38				34	33	32			29	28		26		24		22	21	20
106.6	106.6	106.8	106.8	107	107.4	107.4	107.4	107.4	108.6	108.6	108.8	108.8	108.8	109.2	109.2	110.2	110.4	110.4	110.8	111.2	111.8	114.4	114.8	115.6	115.6
11.0 293050		11.0 276800	11.0 1920	11.0 299800	Ļ	Ļ		.1 969	.2 314100	.2 296300	.2 113193				.3 24045	11.4 186752		.4 22437	.4	11.5 321250		1065	65140	11.9 125401	11.9 123580
1 SCO939116	1 AY267372	1 SC0939115	1 AB018799	1 AP005040	1 AB116234	11 PM12H12B	6 BD093916	6 BD178315	1 SC0939106	1 AP005035	6 AX703543		2 LMFLCHR36_07		1 AB070941	9 AC111200		1 AY027524	2 LMFLCHR32_06	1 SC0939111	1 AF453501	11 PM2B12B	6 AX211705	6 AX211739	1 AF263912
AL939116 Streptomy	AY267372 Actinomad	AL939115 Streptomy	AB018799 Streptomy	AP005040 Streptomy	AB116234 Streptomy	AL684455 Penicilli	BD093916 Transform	BD178315 Transform	AL939106 Streptomy	AP005035 Streptomy	AX703543 Sequence	AF357202 Streptomy	Continuation (8 of	AP005050 Streptomy	AB070941 Streptomy	AC111200 Homo sapi	AC111200 Homo sapi	AY027524 Frankia s	Continuation (7 of	AL939111 Streptomy	AF453501 Actinosyn	AL684695 Penicilli	AX211705 Seguence	AX211739 Sequence	AF263912 Streptomy

ALIGNMENTS

THE CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	Query Match
Transformant producing PF1022 substance and process for producing PF1022 substance and process for producing BD178315 BD178315.1 GI:30015580 WO 02077244-A/3. Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Streptomyces venezuelae Transformant producing PF1022 substance and process for producing Transformant producing PF1022 substance and process for producing Transformant producing PF1022 substance and process for producing Transformant producing PF1022 substance and process for producing Transformant producing PF1023 substance and process for producing Transformant producing PF1023 substance and process for CC C12N15/61, C12N1/15, C12P17/14// (C12N1/15, C12R1:645), (C12N1/15, C12P17/14// (C12N1/15, C12R1:645), (C12P17/14, C12R1:645) Transformant producing PF1022 substance and process for CC producing the same CC and novel biosynthetic gene FH Key FT CDS Location/Qualifiers 1. 969 /roganism="Streptomyces venezuelae" /mol_type="genomic DNA" /mb_xref="taxon:54571" h 100.0%; Score 969; DB 6; Length 969;	100.0%; Score 969; DB 6; Length

O

```
밁
                        S
                                              밁
                                                            S
                                                                                  밁
                                                                                                 Ş
                                                                                                                       밁
                                                                                                                                    Ś
                                                                                                                                                     Дb
                                                                                                                                                                        Ś
                                                                                                                                                                                              В
                                                                                                                                                                                                            ક
                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                       뫄
                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity 100.0%; nes 969; Conservative (
            961
                           961
                                                901
                                                                 901
                                                                                  841
                                                                                                    841
                                                                                                                        781
                                                                                                                                        781
                                                                                                                                                                             721
                                                                                                                                                                                               661
                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                   601
                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Н
                                                                                                                                                         CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCGGACCGT
                                                                                                                                                                                                                                                                                                                                                                                                                      CGGACGGCATGGCCGCGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGAGCGGCTTCCCCCCCAGCGTCGTCGTCGTCGGCGGCAGCGGGGGCGGTGGGCGGCATGTTC
                            GACCGATGA 969
                                                      CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGACGAAGGCGAGAAG
                                                                                            GCCGACGCCCCGGGCGCCGACGCCCCCGGCCATCCCCGGGGGATGCGACGGCGCCGGG
                                                                                                                                                                                                         GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGGC
                                                                                                                                                                                                                                  GCGGCGACCGCCACCAGCAGCTGCTCCTCCTCCTGCCCCTGTTGCTCGCC
                                                                                                                                                                                                                                                 GCGGCGACCGCCCCCCCCCACCAGGTGCTCCTCGCCCCTCCTGGCCCCGTGTGCTCCGGC
                                                                                                                                                                                                                                                                                                                    GTACGGCTCACGGCGGAGGAGCACGACGGACGGCGGCCCAGGCCCAGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                             AACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGTCGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGGCGCCGTGACCCCGGCTCATGCGGCCGGGCGCGCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGGCCCGGACCTCGCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGTCGTACCGCTACGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCG
            GACCGATGA
                                                                                  AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGC
                                                                                                                       GCCGACGCCCCCGGCGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCGGG
                                                                                                                                                                                                                                                                       GCCGTGCTCCTCCTTCCGGGCTCGGCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                         AGGGACGGGCCGGGCGTCACGGCCCTGCTGCGGCTCGACGGCGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCCTCCGGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCTCCGGGACCTCGTCCTGCTCGCCGTACACGACGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGACGGCCGGACGCCTGCCTGGTGGGCCGACGTCACCGCGCCGGGGCCCGAACTCGCGGCC
                                               CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGAAGGCGAGGAAG
                                                                                                                                                                                               GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                               AGGGACGGGCCGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCC
                                                                                                                                                                                                                                                                                                                                                                                   AACCCGATGTTCGCCCCCCCCCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 5.6e-66;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                               960
                                                               960
                                                                                 900
                                                                                                    900
                                                                                                                      840
                                                                                                                                        840
                                                                                                                                                          780
                                                                                                                                                                                              720
                                                                                                                                                                                                                720
                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                     660
                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BD093916
             g
                                δ
                                                      밁
                                                                    δ
                                                                                          밁
                                                                                                          Ś
                                                                                                                              밁
                                                                                                                                           Ś
                                                                                                                                                                   밁
                                                                                                                                                                                   á
                                                                                                                                                                                                      В
                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                       FEATURES source
                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                      301
421
                  361
                                    361
                                                                       301
                                                                                           241
                                                                                                             241
                                                                                                                              181
                                                                                                                                                181
                                                                                                                                                                   121
                                                                                                                                                                                     121
                                                                                                                                                                                                       61
                                                                                                                                                                                                                         13
                                                                                                                                                                                                                                           μ
```

RESULT

N

```
δ
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 969; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Transformants that produce secondary metabolites modified by a functional group(s) and movel biosynthesis genes patent: WO 0123542-A 3 05-APR-2001;
MEIJI SEIKA KAISHA LTD, KOJI YANAI, KAORU OKAKURA, SHOHEI YASUDA, MANABU WATANABE, KOICHI MIYAMOTO, NAOKI MIDO, TAKESHI MURAKAMI OS Streptomyces venezuelae PN WO 0123542-A/3
PD 05-APR-2001
05-APR-2001
PF 29-SEP-2000 WO 2000JP006783
PR 29-SEP-1999 JP 99P 276314
PR KOJI YANAI, KAORU OKAKURA, SHOHEI YASUDA, MANABU WATANABE, KOICHI PI NAOKI MIDO, TAKESHI MURAKAMI NAOKI MIDO, TAKESHI MURAKAMI PI 
421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 ATGAGCGGCTTCCCCCCCCACAGCGTCGTCGTCCGCCGCAGCCGGCAGCCGGCGCGCATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomyces venezuelae
Bacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 969)
Yanai, K., Okakura, K., Yasuda, S., Watanabe, M., Miyamoto, K., Mido, N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BD093916 969 bp DNA linear Transformants that produce secondary metabolites functional group(s) and novel biosynthesis genes.
BD093916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Streptomyces venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO 0123542-A/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BD093916.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGGCCGGGGCCCGAACTCGCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                             AGGGACGGGCCGGCGTCACGGCCTGCTGCGGCTCGTCGAGGGCGGCGGCAGGCCCC
                                   AGGACGGGCCGGCGTCACGGCCCTGCTGCGGCTCGAGGGCGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                     CGGACGGGCATGGCCGGGGCTCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                CGGACGGGCATGGCCGCGGAGCTCGCGGCCCACGCCGCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGGCTGCTGCGGGAGGCGGGAGGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAOKI MIDO,TAKESHI MURAKAMI
C12N15/09,C12N5/10,C12P21/02,C07K11/00//(C12P21/02,C12R1:645)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers (1)..(966).
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Streptomyces
/mol_type="genomic DNA"
/db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:22639504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 969; DB 6;
Pred. No. 5.6e-66;
0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         venezuelae"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YASUDA, MANABU WATANABE, KOICHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7-AUG-2002
1 by a
                                                            480
                                                                                                                                 420
                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
480
                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
```

```
JOURNAL
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 3
AB116234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                         Streptomyces venezuelae
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                               protein, con
AB116234
AB116234.1
                                                               Direct Submission
Submitted (01-AUG-2003) Koji Yanai, Meiji Seika Kaisha, Microbiological Resources and Technology Laboratories; Odawara-shi, Kanagawa 2500852, Japan (E-mail:koji yanai@meiji.co.jp, Tel:81-465-37-5106, Fax:81-465-37-6397)
                                                                                                                                                                                                                                      Murakami,T.
Para-position derivatives of fungal anthelmintic cyclodepsipeptides engineered with Streptomyces venezuelae antibiotic biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                         AB116234 DIA DIA BOT 03-JUI STEPPLONYCES VENEZUELEE BET NA LINEAR BCT 03-JUI Streptonyces venezuelae papA, papC, papB, ORFIV genes for 4-amino-4-deoxychorismate synthase, 4-amino-4-deoxyprephenate dehydrogenase, 4-amino-4-deoxychorismate mutase, hypothetical
                                                                                                                                                                                                                            Nat.
                                                                                                                                                                                                                                                                                                                                                                                Streptomyces venezuelae
                                                                                                                                                               Murakami
                                                                                                                                                                            Yanai,K.,
                                                                                                                                                                                                                                                                                                    Yanai,K.,
                                                                                                                                                                                                           5184904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGACGAAGGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGC 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGACGCCCCCGGGCGCCGACGCCCCCGGCCATCCCCGGGGGATGCGACGGCGCCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGGCGACGGCACCGCCCCACCAGGTGCTGCTCCTCGCCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GACCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCGATGA 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGACGCCCCGGGCGCGCCGACGCCCCCCGGCCATCCCGGGGGATGCGACGGCGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCCGGACCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGCGACGGCCGCCCCCACCAGGTGCTGCTCGCCCCTCGTGGCCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTACGGCTCACGGCGGAGGAGCACGACCGACGACGACGGCCCACGCCCTGACGCAC 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGACGAGGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCCGGAGCTCGCGGCGGGC 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACCGGACCGGACCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGTGCTCCTCCTCGGGCTCGCCCCCCCCCCCCCCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGTGCTCTCCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                        (bases 1 to 5251)
nai,K., Sumida,N., Okakura,K.,
                                                                                                                                                                                                                         Biotechnol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                complete cds.
/organism="Streptomyces venezuelae"
/mol_type="genomic DNA"
                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                  Sumida, N., Okakura, K., Moriya, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          969
                                                                                                                                                                                                                                                                                                                                                                                                                 GI:47846865
                                                                                                                                                                                                                         22 (7),
                                                                                                                                                                                                                         848-855 (2004)
                                                                                                                                                                        Moriya, T.,
                                                                                                                                                                            Watanabe, M.
                                                                                                                                                                                                                                                                                                    Watanabe, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BCT 03-JUL-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                 ORIGIN
                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3673.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="]
2708. .:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2708.
```

```
/transl_table=11
/product="4-amino-4-deoxychorismate synthase"
/protein_id="BAD21140.1"
/protein_id="BAD21140.1"
/protein_id="BAD21140.1"
/db xref="G1:47946866"
/db xref="G1:47946866"
/translation="MRTLLIONYDSFTHNLFQYIGEATGQPPVUVPNDADWSRLFVED
FDAIVVSpGPGSSDRERDFGISRATIDSGLFVLGVLGHQGIAQLFGGTVGLAFEPM
HGRVSSVRHTGEDVERGLFSSFFFFTAVRYHSLAATDLPDELEFLAWEDDGVVWGLHHREK
FLWGVQFHPESIGSDFGREIMANFRDLALAHHRARRHGADSPYELHVRRVDVLPDAEE
VRRGCLPGEGTTWLDSSSVLEGASRFSFLGDDRGPLASYLTYRVADGVVSVRGSDGT
TTRTRRFFFNYLEGQLERRRVFVAPELFFEFNLGYVGYLGYELKAETTGLPAHRSFHP
DAAFLFADRAIALDHGGGCCYLLALDBRGHDDGARAWLRETAETITGLAVRAPAEFTP
DAAFLFADRAIALDHGGGCCYLLALDBRGHDDGARAWLRETAETITGLAVRAPAEFTP
AMVFGIFEAANAGFGFLARARHDKDAYLKRIDECLKEIRNGESYEICLTNWVTAFTEAT
ALPLYSALRAISPVPYGALLEFPELSVLSASFERFLTICADGGVSKFIKGTRPRGGT
AEEDERLRADILAGREECDRASHUMIVDLVRADLHSVAHGALFEVETYAPVHQL
VSTIRGRLRPGTSTAACVRAAFPGGSMTGAPKKRTMEIIDRLEEGPRGVYSGALGWFA
LGGAADLSIVIRTIVLADGQAEFGVGGAIVSLSDQEEEFTETVVKARAMVTALDGSAV
                                                                                                                                                                                                                                                                                                                                                                                                                4065. .5243
/gene="ORFIV"
4065. .5243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="msgfprsvvvggsgavggmfagllreagsrtlvvdlvpppgrpd
ACLVCDVTAPGPELAAALRDADLVLLAVHEDVALKAVAPVTRLMRPGALLADTLSVRT
GMAAELAAHAPGVQHVGLMPMFAPAAGMTGRPVAAVVTRDGPGVTALLALLVEGGGRP
VRLTAEEHDRTTAATQALTHAVILSFGLALARLGVDVRALAATAPPPHQVLLALLARV
LGGSPEVYGDIQRSNPRAASARRALAEALRSFAALVGDDPDRADAPGRADAPGHPGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/product="4-amino-4-deoxychorismate mutase"
/protein_id="BAD21142.1"
/db_xref="GI]:47846868"
/translation="MTEQNELQRLRAELDALDGTLLDTVRRRIDLGVRIARYKSRHGV
/translation="MTEQNELQRLRAELDALDGTLLDTVRRRIDLGVRIARYKSRHGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="papA"
651. .2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DGAGNLDGVFGELRRLMGPELAAGQDHCQELFRTLHRTDDEGEKDR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /evidence=experimental
/trans1 table=11
/product="4-amino-4-deoxyprephenate dehydrogenase"
/protein id="BAD21141.1"
/db_xref="GI:47846867"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="papB"
/codon_start=1
/evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="papB"
3673. .3984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="papC"
codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                        gene="ORFIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="papA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .3676
```

```
S
                                             밁
                                                                 Ś
                                                                                            밁
                                                                                                               á
                                                                                                                                           뭐
                                                                                                                                                                á
                                                                                                                                                                                         밁
                                                                                                                                                                                                          5
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                          3428
                                               3608
                                                                                            3548
                                                                                                                                                                                                                                        3368
                                                                                                                                                                                                                                                                                      3308
                                                                                                                                                                                                                                                                                                                                     3248
                                                                                                                                                                                                                                                                                                                                                                                   3188
                                                                                                                                                                                                                                                                                                                                                                                                                                  3128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2768
                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                      961
                                                                     901
                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     969;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                       AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGAACCGGAGCTCGCGGCGGC
                                                                                                                                                        GCCGACGCCCCGGGCGCCGACGCCCCGGCCATCCCCGGGGGATGCGACGGCCCCGG
                                                                                                                                                                                                       GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCCGC
                                                                                                                                                                                                                                                                                                  GCGGCGACGGCACCGCCCCACCAGGTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                   GCCGTGCTCCTCCTTCGGGCTCGCCCTCGCCCGCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                GTACGGCTCACGGCGGAGGAGCACGACGGACGGCGGCCACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                               GTACGGCTCACGGCGGAGGAGCACGACGGACGACGACGACGCCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACCCGATGTTCGCCCCCGCCGCCGCCGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCGGGGCCCGAACTCGCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCCACGCTCGTCGTCGTACCGCCGCCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGAGCGGCTTCCCCCGCAGCGTCGTCGTCGGCGGCAGCGGGGCGGCGGCATGTTC
 GACCGATGA
                                                                                           AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGC
                                                                                                                                                                                                                                                                                     GCGGCGACGGCACCACCAGGTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                    GCCGTGCTCCTCCGGGCTCGCCCCCCCCCCCCCCCGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGGACGGGCCGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGGACGGGCCGGGCGTCACGGCCCTGCTGCGGCTCGAGGGCCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGGCGCCCGTGACCCCGGCTCATGCGGCCGGGCGCGCTGCTCGCCGACACCCCTGTCCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGACGGCCGGACGCCTGCCTGGTGGGCCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGGGCTGCTGCGGAGGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACCGATGA
                                                                    CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGAAGGCGAGAAG
                                                                                                                                                                                        CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCCGGACCGT
                                                                                                                                                                                                                                       CGGACGGCATGGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGGCGCCCGTGACCCGGCTCATGCGGCCGGCGCGCTGCTCGCCGACACCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; ilarity 100.0%; Conservative 0
                      969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 969; DB 1;
Pred. No. 2.7e-66;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                       3427
                                                                                                                                                                                                                                                                                     3367
                                                                                                                                                                                                                                                                                                                                                                                  3247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2767
                                                                     960
                                                                                           3607
                                                                                                                                          3547
                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                    3307
                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                               3187
                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2887
                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REMARK
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 4
AF262220
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF262220
AF262220.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21461106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 14159)
                                                                                                                                                                                        3498. .6404
                                                                                                                                                                                                                                                                                                                                                                                                                                           .14159
```

```
Streptomyces venezuelae
Bacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomyces.

1 (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (05-JUN-2001) Biology, Dalk
St, Halifax, NS B3H 4J1, Canada
Sequence update by submitter
On Jun 5, 2001 this sequence version
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  He,J., Magarvey,N., Piraee,M. and Vining,L.C.
The gene cluster for chloramphenicol biosynthesis in Streptomyc venezuelae ISP5230 includes novel shikimate pathway homologues a monomodular non-ribosomal peptide synthetase gene Microbiology 147 (Pt 10), 2817-2829 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            He,J., Magarvey,N.A. and Vining,L. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (01-MAY-2000) Biology, St, Halifax, NS B3H 4J1, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       He,J., Magarvey,N.A. and Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptomyces venezuelae partial sequence.
                                                  /producE="CmlH"
/producE="CmlH"
/producE="CmlH"
/producE="CmlH"
/producE="CmlH"
/producE="CmlH"
/db_xref="Gd:14327897"
/db_xref="Gd:14327897"
/translation="MELPDLLTDLFRRHRGRTALRTAGRTWTYEELDRVTSALARRID
/translation="MELPDLLTDLFRRHRGRTALRTAGRTWTYEELDRVTSALARRID
/translation="MELPDLLTDLFRRHRGRTALRTAGRTWTYEELDRVTSALARRID
/translation="MELPDLLTDLFRANGRTALRTAGRTLYVE"
/ECCHAPAGATLVVAGATTLVVAGATTLVVB
/CFERSALVRGREKAGLARLYAGDVGWFTDPASPAPAGTADEBARSRVAYSITGTYAGATTLVVP
/RLDVAGRTLGSVGRTLAAHGCDLAMLSPSVYARLDEAARSRIRVVEFGGEALGEGEYDK
/ARRYSRVFNAGGSPAENEVGTVDGSPAYATGTDVVSLSDDGELTYLGRIDEQIKR
LGHRVNLAHVGSTLSRHLGREVALVRQDATILLVTAADGBATESLMARIRDLVPVWE
LGHRVNLAHVGSTLSRHLGREVALVRQDATILLVTAADGBATESLMARIRDLVPVWE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="Cmlg"
/protein_id="AAG21974.1"
/protein_id="AAG21974.1"
/db_xref="G:1:10716944"
/db_xref="G:1:10716944"
/translation="wirksypepagktplrepralavrdihsepadlomocdunectafv
/translation="wirksypepagktplrevrestivoladdunolikograhlad
LUTAYHNSRPLRIDEAVRLAYWRHTDGEYLVEVKFSHLIVDLADVUDLLRQIRAHLRG
DTPFGRIGSRYRHHARTVEQYTALPALDPAEVTRALGELDVPGRKGIPTISASVEEWL
PLREGYTFDELLSAVTGULLPALGGGLVLQYEYSRWEFATKGGYYVEIKFLVVRPGLE
SDYTPEYFAKTRHAQESLGRFTMSDLDAFARAFTSGRMPRVVVSDTTFMRPEPDRWRW
PVRSARVFEDLKFLADRSWPGPPLLRMQYKRGFLSPGAAADVLDGLKQRIGASGGTF
APDRLVLVDALPLTSGGKVDRSALRELLASPAGAPHGGTDGEDAAELRRVLDVVTAVL
GQEIGPETSIFDAGGSSLAMIQIQVKLSDAYGEEAVEAAFAAMDYDFAPAAFLRHLRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="non-ribosomal peptide synthetase;
reductase-like domains near C-terminus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Streptomyces
/mol_type="genomic DNA"
/strain="ISP5230"
                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /map="adjacent to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     function="essential for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:14290414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     venezuelae
venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                             _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14159 bp DNA linear B
chloramphenicol biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Vining, L.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pabAB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dalhousie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dalhousie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  chloramphenicol biosynthesis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                replaced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           University,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         University, 1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BCT 09-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene cluster,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1355 Oxford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Oxford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and
```

```
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                     10519
                                                                                                                                                                                                                                                                           10399
                                                                                                                                                                                                                                                                                                                                     10339
                                                                                                                                                                                                                                                                                                                                                                                                 10279
                                                                                                                                                                                                                 10459
                                                                                                                                                                                                                                                                                                                                                                                                                                                             10219
                                                                                                                                                                                                                                                                                                                                                                   181
                                                              481
                                                                                                                         421
                                                                                                                                                                                   361
                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                               121
    541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  953;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \vdash
                                                                                                                                                                                                                                                                                                                                                                                                               GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCGGGGCCCGAACTCGCGGCCC
                                                                                                                                                                                                                                                                                           GTGGCGCCCGTGACCCCGGCTCATGCGGCCGGGCGCGCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                     GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGAGCGGCTTCCCCCGGAGCGTCGTCGTCGGCGGCAGCGGAGCGGTGGGCGGCATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGAGCGGCTTCCCCCGCAGCGTCGTCGTCGGCGGCAGCGGGGCGGTGGGCGGCATGTTC
 CGGACGGGCATGGCCGCGGAGCTCGCCGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                 GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCGGGGCCCGAGCTCGCGGCC
                                 GTACGGCTCACGGCGGAGGAGCACGACCGGACGGCGGCGACCCAGGCCCTGACGCAC
                                                   GTACGGCTCACGGCGGAGGAGGACCGACGACGGACGGCCCACCCCAGGCCCTGACGCAC
                                                                                                              AACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACC
                                                                                                                                                                                                              CGGACGGGCATGGCCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                           GTGGCGCCCGTGACCCGGCTCATGCGACCCGGGCGCGCTGCTCGCCGACACCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                     GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Region: 4350. .4370 /note="Region: 4494. .4538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IGGHVLDRLLAAGRPVLVVSTGDPDGVLTGHATRFGRQAADYARVRAISYABLERWVD
RRGGFVVDAVVHCGYQVNHLLPLDSHLSGSVENTALVVRAAASHABGARSFAFLSAASAG
ADFLPLSAATLTAVGDPYSRSKLISBESVNTJAVLGAVASHAPBGARFRFBENHHL
KDDWFTALLETARRVGAMPRLSGHVFVCDVGTLADTLLGRPDANFGTADGASRTPDSR
SAVVVHRTYALDELLHHTGLTEADVLAPAMFERVRDGGEVPAFULAAMQAALSGPGW
PSAHREVDHDILGRLLGTPPDTPAGDRPERTGTTSRGPERRPRADTALTGTEP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="Region: thiolation 5343. .5375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Region: 5043. .5075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Region: 4593. .4610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3576.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Region:
4893. .4910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="Region:
4833. .4853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="Region:
4647. .4706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3708. .3746
/note="Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'note="Region: adenylation domain Al"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                94.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 915.4; DB 1;
Pred. No. 2.2e-62;
0; Mismatches 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NADH binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      adenylation domain A10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         adenylation domain A4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    adenylation domain A9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  adenylation domain A8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            adenylation domain A5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       adenylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          domain"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                domain A7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     domain A2'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              domain A6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       domain A3'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 14159;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18;
                                                                                                                         480
                                                                                                                                                                                                                                             360
                                                                                         10638
                                                                                                                                                                                                               1051
                                                                                                                                                                                                                                                                                                                                    10398
                               10698
                                                             540
                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                           10458
                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                10338
                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                             10278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10218
                                                                                                                                                     10578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT
A48324
                 S
                                             밁
                                                                      Ś
                                                                                                       밁
                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                  Matches 486;
                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661
                 127
                                               79
                                                                                                           19
                                                                                                                                     10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
A48324
A48324.1
                                                                                                                                                                                                                                                                                                                                               Dutruc-Rosset, G.
STREPTOGRAMINES AND METHOD FOR PREPARING PATENT: WO 9601901-A 2 25-JAN-1996;
RHONE POULENC RORER SA (FR)
                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 888)
Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, F.,
Barriere, J., Debussche, L., Famechon, A., Paris, J. an
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomyces pristinaespiralis
Streptomyces pristinaespiralis
Bacteria, Actinobacteria, Actinobacteridae, Actinomycetales;
Streptomycineae; Streptomycetacede; Streptomyces.
                                                                                                                                                                                                                                                                                                                       Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A48324
ccggacgcctgcctggtgggcgacgtcaccgcggggcccgaactcgcggccctc
                                                                      CITGCTGCGGGAGGCGGGAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCGCGGGACGG
                                                                                                                                     GACGACGAAGGCGAGAAGGACCGATGA 11145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACGACGAAGGCGAGAAGGACCGATGA 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGATGCGACGGCGCCGGGAACCTCGACGGCGTCTTCGAGGAACTCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGATGCGACGGCGCCGGGAACCTCGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGAGGACCCGGACCGCGACGACCCGGACCGACAACCCCGGCCATCCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGGCGCTCGCCGAGGCCCTGCGCTTCGCCGCGCTTGGTCGGCGAC---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCAGCCCCGAGGTGTACGGGGGACATCCAGCGGTCCAACCCCCCGGGCGGCGTCCGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCGACGGCACCGCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCGACGGCCGCCCCCACCAGGTGCTCGCCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGTGCGTTCGGGGGTGGCGGTGACCTGGACGTGGCCGGGGGCCGGTGCGGCGGAC
                                                                                                         rrcgggcerrgrgrgrgrgggeeecegecegergegeecegearerrengeeacege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGATCGGCGACGACCCCGGACCGC 10938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                    publication AU 2891295 960209
publication FR 2722210 960112
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                888 bp
2 from Patent WO9601901.
                                                                                                                                                                                                                                         /organism="Streptomyces pristinaespiralis"
/mol_type="unassigned DNA"
/db_xref="taxon:38300"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:2302117
                                                                                                                                                                                27.9%;
                                                                                                                                                                   0
                                                                                                                                                                Score 270.8; DB 6
Pred. No. 1.5e-12;
0; Mismatches 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA
                                                                                                                                                                                                DB 6;
                                                                                                                                                                   337;
                                                                                                                                                                   Indels
                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                   ВХ
                                                                                                                                                                                                 888;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PAT
                                                                                                                                                                   ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-MAR-1997
                                                                                                                                                                   Gaps
                  186
                                                                             126
                                                                                                           78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10758
```

ORIGIN

Matches

ફ 밁 Ś 밁 δ 망 Ś 밁 र्श 밁 Ś 밁 5 밁 ई 밁 ş 밁 ફ

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 6
AR198354
LOCUS
                                                                                                                                                                                                                             TITLE
JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                Query Match
Best Local Sim:
Matches 486;
                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AR198354
Sequence
AR198354
                                                                                                                                                                                                                        Streptogramins for preparing same be Patent: US 6352839-A 2 05-MAR-2002; Location/Qualifiers
                                                                                                                                                                                                                                                                                                 1 (bases 1 to 888)
Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, F., Crouzet, J. Barriere, J.-C., Debussche, L., Famechon, A., Paris, J.-M. and Dutruc-Rosset, G.
                                                                                                                                                                                                                                                                                                                                                                                                                        Unknown
                                                                                                                                                                                                                                                                                                                                                                                                    Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unknown.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AR198354.1
                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCCGGGCGCCGACGCCCCCGGCCATCCCGGGGATGCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCTCCTTCGGGCTCGCCCTCGCCTCGGCGTCGACGTCCGGGGCCCTGGCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGGCCGGGCCTGGTGCGGCTGGGGCAGGCCGTCGAGAGGGGGCGACGAGGAGGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTGCCCCGCCGCCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCCGGCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGCTGGCCTTCGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGCGCTGCGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGCCGGCGCGGCACGACGACGACGCTGACCGCCGCGCAGCAGGCCGCCACGCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGCCCGGTGTGCCGGCCTGGTGGAGCTGGTGGCCGGGGGGGCCCCGGGTGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              egecceeecercaceccriscrescerrcerceaeecececececaeececeraeec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGTTCGCCCCCTCGCTGGGTCTTCAGGGGCGGCCGGTGGCGGCGGTGGTGGTCACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGTTCGCCCCGCCGGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGATCGCCGGGCTGCGTGAGGCGCGCGCGGGGCTGCAGGCGGTGGGGCTGAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGCTGGCGGGGTGATGCGGCCCGGTGCGGTGCTCGCGGACACCTTGTCGGTCAAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGCGGCGGACGTGGTGGTGCTGGCGGTGCCGGAGCCGGTGGCGTGGAGGCGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGGTGCGGGTGGTCGCTGATGTGCGGCCGGCCGGGGCCGGAGGCGGTCGCGGCGCTG
                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N
                                                                                                                                                                                                    1. .888
                                                                                                                                                    /organism≈"unknown"
/mol_type="unassigned
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:20248203
                                                    27.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               patent
                           Score 270.8; DB 6
Pred. No. 1.5e-12;
0; Mismatches 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               888 bp
s 6352839.
                                                                                                                                                         DNA"
                                                                                                                                                                                                                                                                        γ̈́
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
                                   337;
                                                                                                                                                                                                                                                                           mutasynthesis
                                                                              6
                                   Indels
                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 844
                                                                                888;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PAT
                              ٤.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        198
                              ۲,
                                                                                                                                                                        DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                      RESULT 7
A48323/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
       TITLE
                                                                              AUTHORS
l (bases 1 to 2888)
Blanc, V., Thibaut, D., Bamas
Barriere, J., Debussche, L., F
Butruc-Rosset, G.
STREPTOGRAMINES AND METHOD F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      547
                                                                                                                                                                                                                                                                                                                                                                                                                                               799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        127
                                                                                                                                                                                                                                               A48323
Sequence 1 :
A48323
A48323.1 G:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
                                                                                                                                             Streptomyces pristinaespiralis
Streptomyces pristinaespiralis
Bacteria, Actinobacteria, Actinobacteridae,
                                                                                                                         Streptomycineae; Streptomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ecccceeecececeacecccceeccarccceeegareceace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGGCCGCCGGCCTGGTGCGGCCAGGCCGTCGAGAGGGGGCGACGAGGAGACGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGGAGGTGTATTTCGACATCCAGGCCGCCAACCCCGGCGCGCCGCCGCCGGCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGCCCGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGCTGGCCTTCGGGCCTGGGGCGTGAGCTGTGGACGTGGGGGCGCTGCGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGCCGGGCGTCACGGCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGTTCGCCCCCGCCGCCGCCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCACGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGATCGCCGGGCTGCGTGAGGCGGCGCGGGGCTGCAGGCGGTGGGGCTGAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCATGGCCGCGAGCTCGAGCCCCACCGGCGTCCAGCACGTGGGCCTCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGCGGACGTGGTGGTGCTGGCGGTGCCGGAGCCGGTGGCGTGGAGGCGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGGACGTCGTCCTGCTCGCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGGTGCGGGTGGTCGCCGGTGATGTGCGGCGGCCGGGGCCCGGAGGCGGTCGCGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCCCCCGCAGCGTCGTCGTCGGCGGCAGCGGGGCGGTGGGCGGCATGTT----CGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       circaccayaecciciaececrocurocecececiciae de acesecece en constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de constante de c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGTGCCCCGCCGCATCTGGCGATGCTGGCGGCTGGCCCGGATCGCCGGCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CICCICICCTICGGGCICGCCICGCCCCGCCTCGACGICCAGGCCCIGGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGCCGGCGCGGCGCACGACGAGCTGACCGCCGCGCAGGCCGCCACGCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGCCCGGTGTGCGGGCCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGCCCCGGGTGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGTTCGCCCCCCCGCTGGGTCTTCAGGGGGGGGGCGGTGGTGGTGGTCACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        créerécerreéeserescereacrescresaceresceseseces en ceresces en construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construction de la construc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCGGGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rrcegecerrereredesececegecegeredesecececarerredesecececarerrese
                                                                                                                                                                                                                                                    GI:2302116
                                                                                                                                                                                                                                                                                                 from
                                                                                                                                                                                                                                                                                               Patent
                                               Bamas-Jacques,N.,
e,L., Famechon,A.,
                                                                                                                                                                                                                                                                                               2888 bp
WO9601901
     FOR
     PREPARING
                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                                         Streptomyces
                                                  Blanche, F.,
Paris, J. an
     SAME
                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                  Actinomycetales;
     ВΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                               844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          832
```

366

426

318

306 258 246 198 186 126

78

138

MUTASYNTHESIS

07-MAR-1997

738

726

786

678 666 618 606 546 498 486 438

```
ş
                                        B
                                                                   ર્ક
                                                                                                                      В
                                                                                                                                                    ક
                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1818
                                                                                                                                                                                                      1158
                                                                                                                                                                                                                                                                                                                                                                   1278
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1758
                                                                                                                                                                                                                                                                                     1218
                                          1038
                                                                                                                        1098
                                                                                                                                                                                                                                            667
                                                                                                                                                                                                                                                                                                                           607
                                                                                                                                                                                                                                                                                                                                                                                                           547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       187
                                                                              787
                                                                                                                                                              727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RHONE
Other
Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent: WO 9601901-A 1 25-JAN-1996;
                                                                                                                                                                                                                                                                                                            ACGGCACCGCCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGTTCGCCCCCGCCGCCGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCGGGGCCCGAACTCGCGGCCGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTCCCCCGCAGCGTCGTCGTCGGCGGCGGCAGCGGGGCGGTGGGCGGCATGTT---CGCCGGG
                                                                                                                                                                                                                           CCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGCGCTCCGCGCGCCCGGGCG
                                                                                                                                                                                                                                                                                                                                                                                            CTCCTCTCCTTCGGGCTCGCCCTCGCCTCGGCGTCGACGTCCGGGGCCCTGGCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGCCGGCGCGCGCACGACGACCTGACCGCCGCGCAGCAGGCCGCCACGCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGGCCCGGTGTGCGGGCCCTGGTGGAGCTGGTCGGCCGGGTGGGGGGCCCCGGGTGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGCCGGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCCGGCGGCGGCGGCAGGCCCCTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGTTCGCCCCCTCGCTGGGTCTTCAGGGGCGGCCGGTGGCGGCGGTGGTGGTCACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGATCGCCGGGCTGCGTGAGGCGGCGGCGGGGCTGCAGGCGGTGGGGCTGAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGCTGGCGGGGGTGATGCGGCCCGGTGCGGTGCTCGCGGACACCTTGTCGGTCAAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCGGCGGACGTGGTGGTGGCGGCGGTGCCGGAGCCGGTGGCGTGGGAGGCGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGTGCGGGTGGCCGGTGATGTGCGGCGGCCGGGGCCGGAGGCCGGTCGCGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGGTGCGTTCGGGGGTGGCGGTGACCTGGCTGGACGTGGCCGGGGCCGGGGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTCGGGCGTTGTGTGGTGGGCGGGCGGGCCGGTGGGGCCGCATGTTCAGCCACTGG
                                          GCCGCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCG
                                                                                GCCCCGGGCGCGACGCCCCCGGCCATCCCGGGGGATGCGACG
                                                                                                                        CTGGGCCGCGGCCTGGTGCGGCTGGGGCAGGCCGTCGAGAGGGGGCGACGAGGAGACGTTC
                                                                                                                                                              AGTGCCCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCCGGCGGACG
                                                                                                                                                                                                                                                                                                                                                                     GTGCTGGCCTTCGGGCTGGGCTGGGTGAGCTGTCGGTGGACGTGGGGGCCTGCGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cccereaccceecreareceeceeceeceeceeceeceeceeceeceeceecee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         publication AU 2891295
publication FR 2722210
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POULENC RORER SA (FR)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Streptomyces pristinaespiralis"
/mol_type="unassigned DNA"
/db_xref="taxon:38300"
                                                                                                                                                                                                        . 2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 270.8; DB 6; Pred. No. 8.8e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     960112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        960209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                              832
                                          993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          u
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1759
                                                                                                                                                                                                      1099
                                                                                                                                                                                                                                                                                     1159
                                                                                                                                                                                                                                                                                                                                                                   1219
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1699
                                                                                                                                                                786
                                                                                                                                                                                                                                                                                                                             666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AR198353/c
LOCUS
                             S
                                                                                                         S
                                                                                                                                                 g
                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
맑
                                                                              밁
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          y Match
Local (
1158
                                                                                                                                                                                                                                                                                                                             1398
                                                                                                                                                                                                                                                                                                                                                                                                           1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1818
                                                                                                                                                                1278
                                                                                                                                                                                                                                            1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1578
                                        667
                                                                                                                                                                                                                                                                                     487
                                                                                                                                                                                                                                                                                                                                                                                                                                                 367
                                                                                                                                                                                                                                                                                                                                                                   427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AR198353
Sequence 1
AR198353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AR198353.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
ACGGCACCGCCGCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGGCAGC
                                                                                                                                                                GTGCTGGCCTTCGGGCTGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGGCGCTGCGGGAC
                                                                                                                                                                                   CTCCTCTCCTTCGGGCTCGCCCTCGCCCCGCGTCGACGTCCGGGCCCTGGCGGCG
                                                                                                                                                                                                                                                                        ATGTTCGCCCCCCCCCCCGCCATGACCCGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGATCGCCGGGCGGCTGAGGCGGCGGCCGGGGCTGCAGGCGGTGGGGCTGAACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCATGGCCGCGGAGCTCGCCGGCCCACGCCCGGCGTCCAGCCACGTGGGCCCTCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGCTGGCGGGGTGATGCGGCCCCGGTGCGGTGCTCGCGGACACCTTGTCGGTCAAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGTGACCCGGCTCATGCGGCCGGGCGCGGCTGCTGCCGGACACCCCTGTCCGGTCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGGACGCGGACCTCGTCCTGCTCGCCGTA¢ACGACGAGGACGTGGCCCTCAAGGCCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGGGTGCGGGTGGTGATGTGCGGCGGCGGGGGCCGGAGGCGGTCGCGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCCGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGTGCGTTCGGGGGGCGGTGGCCGGTGGCCGGACGTGGCCGGGCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           crecreceseaecececesececes contrators contrators contrators contrators crecised and contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contrators contr
                                                                                                                                                                                                                                               GGGCCCGGTGTGCGGGCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGCCCCGGGTGGTGGAG
                                                                                                                                                                                                                                                                                                                                                               geacceaecencaceaccinecrecescriceres areas escaceaceaceaceaceaceaceanacea
                                                                                                                                                                                                                                                                                                                                                                                                           ATGTTCGCCCCCCCCGGGGGTCTTCAGGGGGGGGCGGTGGCGGCGGTGGTGGTCACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGGCGGCGGACGTGGTGGTGGCGGTGGCGTGGCGTGGGAGCCGTGGAG
                                                                                AGTIGECECEGECEGEATETEGECGATECTEGECECTEGECECEGGATEGECEGEGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        from
```

246

306 1579 1699

126

186

RESULT

æ

1159

666 1219 1279

546

909

1339

1399

426

486

1459

366 1519

```
Streptogramins for preparing same by Patent: US 6352839-A 1 05-MAR-2002; Location/Qualifiers
                                                                                                                                                                                                      1 (bases 1 to 2888)
Blanc, V., Thibaut, D., Bamas-Jacques, N., Bla
Barriere, J.-C., Debussche, L., Famechon, A.,
Dutruc-Rosset, G.
TTCGGGCGTTGTGTGGTGGGCGGGGCCGGTGGGCCGCATGTTCAGCCACTGG
                 27.9%;
ilarity 58.8%;
Conservative
                                                                                                                     /mol_type="unassigned
                                                                                                                                     organism="unknown"
                                                                                                                                                                                                                                                                                                                        GI:20248202
                                                                                                                                                                                                                                                                                                                                                patent
                                                   Score 270.8; 1
Pred. No. 8.8e
0; Mismatches
                                                     <u>,,</u>
                                                                                                                                                                                                                                                                                                                                             2888 bp i
: US 6352839.
                                                                                                                          DNA"
                                                   .8e-13;
les 337;
                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                               BB
                                                                                                                                                                                            mutasynthesis
                                                                               9
                                                                                                                                                                                                                      Blanche, F., Crouzet, J.,
A., Paris, J.-M. and
                                                     Indels
                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                linear
                                                                                                                                                                                                                                                                                                                                                                 PAT
                                                     ω
••
                                                                                                                                                                                                                                                                                                                                                                 20-APR-2002
                                                     Gaps
 1759
                           66
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 9
SPU60417/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBMED
                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                   Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (11-JUN-1996) Recherche | Rorer. 13 quai Jules Guesde, B. P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Blanc, V., Gil, P., Bamas-Jacques, N., Lorenzon, S., Schleuniger, J., Bisch, D., Blanche, F., Debussche, L., Crouzet, J. and Thibaut, D. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Identification and analysis of genes from Streptomyces pristinaespiralis encoding enzymes involved in the biosynthesis the 4-dimethylamino-L-phenylalanine precursor of pristinamycin I Mol. Microbiol. 23 (2), 191-202 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 4740)
Blanc, V., Gil, P., Bamas-Jacques, N., L
Schleuniger, J., Bisch, D., Blanche, F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SPU60417

4740 bp DNA linear BCT 07-MAR-Streptomyces pristinaespiralis 4-dimethylamino-L-phenylalanine precursor biosynthesis (papA, papC, papB, papM) genes, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9044253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Streptomycineae; Streptomycetaceae; Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    eccccceecceccexcecccccccccarcccceecantecceccarc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 4740)
                                                                                                            ITDGETYEVCLTNMLRVPGRIDPLTAYRALRTVSPAPYAAYLQFPGATVLSSSPERFL
RIGADGWAESKPIKGTRPRGAGPAQDAAVKASLAAAEKDRSENLMIVDLVRNDLGQVC
DIGSVHVPGLFEVETYATVHOLVSTVRGRLAADDVSRPRAVRAAFPGGSMTGAPKVRTM
QFIDRLEKGPRGVYSGALGYFALSGAADLSIVIRTIVATEEAATIGVGGAVVALSDPD
DBVREMLLKAQTTLAALRQAHAGATASDRELLAGSLR"
                                                                                                                                                                                                                        APAPPASAPVGEYRLHVREVACVPDADAAFTALFADAPARFWLDSSRVEPGLARFTFL
GAPAGPLGEQITYDVADRAVRVKDGSGGETRRPGTLFDHLEHELAARALPATGLPFEF
NLGYVGYLGYETKADSGGEDAHRGELPDGAFWFADRWLALDHEGGRAWLLALSSTRRP
ATAPAAERWLTDAARTLATTAFRPPFTLLPDDQLPALDYHYRHSLPRYRELVEECRRL
                                                                                                                                                                                                                                                                                                                    /protein_id="AAC44866.1"
/db_xref="GI:1575336"
/db_xref="GI:1575336"
/translation="MRTVRTILLIDNYDSFTYNLFQMLAEVNGAAPLVVRNDDTRTWQA
/translation="MRTVRTILLIDNYDSFTYNLFQMLAEVNGAAPLVVRNDDTRTWQA
LAPGDEDNVVVSPGEGHPATDTDLGLSRRVITEWDLFLLGVCLGHQALCLLAGAAVVH
APEPFHGRTSDIRHDGQGLFANIFSPLTVVRYHSLTVRQLFADLRATAHTADGQLMAV
AHRHLPRFGVQFHPESISSEHGHRMLANFRDLSLRAAGHRPHTERIFAPAPAPAPAPAPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="
                                                                    /gene="papC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="taxon:38300"
68._.2227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
/gene="papC"
/function="dehydrogenase"
                                               complement (2486 . .3376)
                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
/product="PapA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="papA"
/function="p-aminobenzoate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Streptomyces pristinaespiralis"
/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:1575335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ле="рарА"
.2227
                                                                                           .3376)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pharmaceutique,
. 14, Vitry sur :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lorenzon, S., Zaç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               synthase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zagorec,M.,
L., Crouzet,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Seine cedex 94403,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rhone-Poulenc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BCT 07-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of.
                                     Ś
                                                                                       밁
                                                                                                                               á
                                                                                                                                                                                밁
                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches 478;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                   3238
                                                                                                                                                                                3118 GTGCTGGCGGGGGTGATGCGGCCCGGTGCGGTGCTCGCGGACACCTTGTCGGTCAAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3358
                                                                                                                                   307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                           ccegaceccreccreereseceacercaccececeeecceaacrceceecceccic
                                                                                                                                                                                                                                                                                                      CGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCCGTGGCG
ATGTTCGCCCCCTCGCTGGGTCTTCAGGGGGGGGGCGGTGGCGGGTGGTGGTCACCGAC
                                          ATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC 426
                                                                                                                                   GGCATGGCCGCGGAGCTCGCCGGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCG
                                                                                                                                                                                                                        cccereaccceecreareceeceececececrecreeceeacacccrerccerceeace 306
                                                                                                                                                                                                                                                                       GCGGCGGCGGACGTGGTGGTGCTGGCGGTGCCGGAGCCGGTGGCGTGGGAGGCGGTGGAG
                                                                                                                                                                                                                                                                                                                                                              GGGGTGCGGGTGGTCGCTGATGTGCGGCCGGCCCGGGGCCCGGAGGCGGTCGCGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGGTGCGTTCGGGGGTGGCGGTGACCTTGGCCTGGACGTGGCCGGGGGCCGGTGCGGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCGGGCGTTGTGTGGTGGGCGGGGGGCCGGTGCGGTGGGCCGCATGTTCAGCCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCCCCCGCAGCGTCGTCGTCGGCGCGCAGCAGCGGCGCATGTT---CGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transT table=11
/producT="PapB"
/protein id="AAC44868.1"
/db_xref="GI:1575338"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/trans1 table=11
/product="PapM"
/product="BapM"
/product="BapM"
/protein_id="AAC94869.1"
/protein_id="AAC94869.1"
/db_xref="GI:1575339"
/translation="MTAAAPTLAQALDEATGQLTGAGTTADAARADTRLLAAHACQVA
PGDLDTCLAGPUPPRFWHYVRRRLTREPAERIVGHAYFMGHRFDLAPGVFVPKPETEE
PGDLTCLAGPUPPRFWHYVRRRLTREPAERIVGHAYFMAWTLARHVPAARVLGIELSQAAARAA
RRNARGTGARIVGGDARDAFPELSGTVDLVVTNPPYIPIGLRTSAPEVLEHDPPLALW
AGEEGLGMIRAMETAARLLAAPGGVLLLEHGSYQLASVPALFRATGRWSHASSRPTCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /producE="PapCC"
/protucE="Cate | PapCC"
/protucE="Cate | PapCC"
/protucE="Cate | PapCC"
/protucE="Cate | PapCC"
/db_xref="Cate | PapCC"
/db_xref="Cate | PapCC"
/translation="MRGGSVFGRCVVVGGAGAVGRMFSHWLVRSGVAVTWLDVAGAGA
/bgvrvVAGDVRRPGBENVALLAAADVVVLAVEEVAMAAVAVTVTDGFGVRAFGAVLADTL
SVKSRIAGRIKEBAAPGLOAVGLNWFAPSLGLOGREVAAVVTVTDGFGVRAFLVELVAGG
GARVVEMPARRHDELTAAQQAATHAAVLAFGLGJGELSVDVGALRDSAPPPHLAMLAL
LARIAGGTPEYYFDIQAANPGAPAARQALGRGLVRLGQAVERGDEETFAALFAELRGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="mtppaipaappatgpaatdpldalrarldaadaalldavrtrl
DICLRIGEYKRLHQVPMMQPHRIAQVHANAARYAADHGIDPAFLRTLYDTIITETCRL
EDEWIASGGAPVPTPVHASASARGAVS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DGCLTAVRNHTCAPPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="papM"
3799. .4677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="papB"
3413. .3802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LGEHGAELERLCARMFTALH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="papM"
/function="N-methylase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="papB"
/function="mutase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .4677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .3802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 270; DB 1;
Pred. No. 8.2e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         325;
                                                                                       rgcaggcggtgggctgaacccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 4740;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
2939
                                                                                       2999
                                                                                                                                   366
                                                                                                                                                                                3059
                                                                                                                                                                                                                                                                          3119
                                                                                                                                                                                                                                                                                                                                                                 3179
                                                                                                                                                                                                                                                                                                                                                                                                              186
                                                                                                                                                                                                                                                                                                                                                                                                                                                          3239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3299
                                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              66
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 10
AY714813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ई
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL,
                                                                                                                                                                                                                                                                     Sgo
                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AY714813
Cercopithecine l
AY714813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tyler,S.D., Peters,G.A. and Severini,A.
Complete genome sequence of Cercopithecine herpesvirus 2
comparison with other simplexviruses
virology (2004) In press
Clases 1 to 150715)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (11-AUG-2004) Health Canada, National Microbiology Laboratory, 1015 Arlington St., Winnipeg, Manitoba R3E 3R2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cercopithecine herpesvirus 2
Cercopithecine herpesvirus 2
Viruses; dsDNA viruses, no RNA stage; Herpesviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tyler, S.D., Peters, G.A. and Severini, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Laboratory, 1015 Arlington St.,
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alphaherpesvirinae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AY714813.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ĠĊĊĠĊĊCTĠTTĊĠĊĊĠAACTGĊĠĊĠĠ 2553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCCCCGGGCGCGCGACGCCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGGAGGTGTATTTCGACATCCAGGCCGCCAACCCCGGCGCGCCGCCGCCGCCGCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGCGCGTCCGCGCGCCCCGGGCG 726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGCTGGCCTTCGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGCGCTGCGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGCCGGCGCGGCACGACGACGAGCTGACCGCCGCGCAGCAGCCACGCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGGGCCGCCGGCCTGGCGCCTGGGGCAGGCCGACGAGGACGACGACGACGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGTGCCCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCGGATCGCCGGCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACGGCACCGCCCCACCAGGTGCTGCTCGCCCCTCGCCCGTGTGCTCGGCCGCAGC 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                crecreteriores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGCCCGGTGTGCGGGCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGCCCGGGTGGTGGAG 2879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGCCGGGCGTCACGGCCCTGCTGCGGCCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 150715)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submission
/product="immediate early protein ICPO"
/protein id="AAUB8065.1"
/protein id="AAUB8065.1"
/db_xref="01:52843274"
/translation="MEPSRGLGAPGRSSAQAAGDALLDEELLMLSRYFFPDSSDDDSD
/translation="MEPSRGLGAPGRSSAQAAGDALLDEELLMLSRYFFPDSSDDDSD
/translation="MEPSRGLGAPGRSSAQAAGDALLDEELLMLSRYFFPDSSDDDSD
/translation="MEPSRGLGAPGRSSAQAAGDALLDEELLMLSRYFFPDSSDDDSDDDSD
/translation="MEPSRGLGAPGRSSAQAAGDALLDEELLMLSRYFPDSSYSTIPUIDPRTRSL
/TRANSLATION-TO-THE CONTROLLDE 
                                                                                                                                                                                                                                                                                                                                                                   /note="a
237. .920
                                                                                                                                                                                                                       /gene="RL2"
                                                                                                                                                                                                            note="multifunctional
                                                                                                                                                                                                                                                             /gene="RL2"
join(2178.
                                                                                                                                                                                                                                                                                                                                                                                                                                               note="SA8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /mol_type="genomic DNA"
/db_xref="taxon:10317"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Cercopithecine
                                                                                                                                                                                       codon_start=1
                                                                                                                                                                                                                                                                                                                                        note="terminal copy of long repeat region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .150715
                                                                                                                                                                                                                                                                                                                                                        . .9207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:52843273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    herpesvirus
                                                                                                                                                                                                                                                                                                                     .4669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               150715 l
virus 2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              812
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complete
                                                                                                                                                                                                       regulatory protein"
                                                                                                                                                                                                                                                               .3020,3398.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          herpesvirus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                               .4669)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ೣ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VRI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-OCT-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (SA8)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Canada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polyA_signal
polyA_signal
polyA_signal
gene
                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                 polyA_signal
polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
             /protein_id="AAU88069.1"
/protein_id="AAU88069.1"
/db_xref="GI:52843278"
/translation="WSASASSATIAYSLHGAATSSACVLPDAEQVVCAFESGTRAIAS
/translation="WSASASSATIAYSLHGAATSSACVLPDAEQVVCAFESGTRAIAS
RGCLEHDALSRGAVVYOTPVGLLVMYDCRTEFCAYEFVGRSERQRLERWWDTTLCAY
PFDSWVSSTRGESARSPTAGIATVVWGEDSIYITVTVYGSPPEGEAGAPPRLPPPPPGD
APDAESPPAVSPASAETGAAADLLVEVMKEIQLSFTLGFGPCDA"
                                                                                                                                                                                                    /note="colocalizes
nuclear bodies"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                complement (11832.
complement (11897.
/gene="UL4"
                                                                                                                                                                                                                                                                                complement (11897.
/gene="UL4"
                                                                                                                                                                                                                                                                                                                                                                                                                                         DPASEDPWQ"
                                                                                                                                                                            /product="UL4"
                                                                                                                                                                                                                                                                                                                                                                                                                 11809.
```

.11837)

.12511) .12511)

with

ICP22

and E3

ä

small,

dense

```
11076. .11081
11130. .11813
/gene="UL3"
11130. .11813
/gene="UL3"
/note="colocalizes v
/tränslation="MSAVGAGAVPSTLAVLASWGWAFAPHDGPPARAAEAPASPAPEA
PTGHPVPPRADDRAPPGVRADPDHVAFDTWFWVSSVDELGRRGUTDTIRKDLRLSIV
NLAIACTKTSSFSGTAGRARPRAHGEGHREPPSHKSLVDWFVLCQRPDATRVRDQLRA
VIASRKPRKYYTRSSDGRISPAVPVFVHEFVSDAPVHVHRDNVIAPVVPRRRTSTRLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MTFDSPARPALGLDDTPAGRPPSLDWPEFRRRFLVGDAWRPLLE
PELANPLTARLMASE PERCRASEOVLPPEREDVESWTRYCTPDEWRVVIIGQDPYHQPGQ
PELANPLYRALMASE PELRNILTAVENCCPERINGSHGCLEKWARGGVLLHNTTLYTH
RGEPASHAQIGWDRFVGSVVRRLAASRPGLVFMLWGAHAQSAIRPDPRVHRVLTYAHP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="virion glycoprotein L"
/protein_id="AAU88066.1"
/protein_id="AAU88066.1"
/db_xref="q1:52843275"
/translation="MAVLRGVLLÄSILFRCSFYNLLLSTPADSSTTEYLIQSVAARTV
/translation="MAVLRGVLLÄSILFRCSFYNLLLSTPADSSTTEYLIQSVAARTV
ADVLKVGCLDLPADGVTWR YEAPRSIDYARIDGIFLRYHCPGLDTVLWDGTAQRAYWV
NPFLFTAGFLEDLSHALFDDNALFFATRRALYKEVRLAVASRSGAASDTPVPPGCVSS
NPFLFTAGFLEDLSHALFDDNALFFATRRALYKEVRLAVASRSGAASDTPARRDRKPRP
EYSRTRRCLGRDTPGLFDEPRLRSPLSAPGDEAAPQPFSPAAPTSSAPPARRDRKPRP
                                                                                                                  /codon_start=1
/product="UL3"
/protein_id="AAU88068.1"
/db_xref="GI:52843277"
                                                                                                                                                                                                                                                                                                                                                                                                                                          SPLSRVPFGSCRHFCLANQYLRERSLAPIDWST"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (4879.
complement (8315.
9469. .10167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4856.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAAARVARPPPADSPILIAUSPPÄSPRR PRAVSGPPVAPVARRPRAMPR PRAQARPP
ALTQAQAQTQARSQARAQAALAQÄLAQALGRAPPRAAPPCTPAHTQTPPRAQAQTQTQT
PTQARAQTRAQTQAQTQAQAQAQAQAQAQATQTQTQARPETQTQAQTQARAQTTOTQTQA
RKRPASGAGGASGSRGPKRASLPAPPDAPARPAQLPPAPPLAAAAPPPAPPPPASSA
                                                                                                                                                                                                                                    nuclear bodies"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="proposed start codon is GTG"
/codon start=1
/codon start=1
/trans1 except=(pos:10235. .10237,aa:Met)
/product="uracil-DNA glycosylase"
/protein_id="AAU88067.1"
/db_xref="GI:52843276"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRGSAAPPPPAAPPPAERAHGSSLGPRPAERGPRKCARKTHHVDADRAPAASGPTRYL
PISGVSSVVAMAPYLNKTVTGDCLPVLDMETGAIGAYVVLVGRDCNLARCLADAEPQW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="UL2"
10235. .10990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KPRRNSTEPSRPRR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1/product="virion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="UL1"
/note="complexes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="UL1"
9469. .10167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ARRSRLPEAAPGCVSPPEYPGDPAHGLWMTPVGGMLFEQGALLGGRSFHSLDSRHPWT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene="UL2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .0235.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .10990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 with
                                                                                                                                                                                                                                                                  with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gi;
                                                                                                                                                                                                                                                                  ICP22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 involved
                                                                                                                                                                                                                                                                  and
                                                                                                                                                                                                                                                               UL4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ä
                                                                                                                                                                                                                                                                  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 membrane
                                                                                                                                                                                                                                                               small,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fusion"
                                                                                                                                                                                                                                                                     dense
```

```
gene
                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sg
                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                          polyA_signal
polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="UL6"
/note="role in DNA cleavage
/codon_start=1
/product="capsid protein"
/protein_id="AAU88071.1"
/db_xref="GI:52843280"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AEGSLTRLAAFTHĞALPAFTRSNIVVIDEAGLLGRHLLTAVVYCWWMTNALYHTPQYA
AĞLR PVL VCVGSPTQTASLESTTEHQKLRCS I RQSENVLTYL ICHTLERYVRLDRSW
AIFINNKRCVEHEFGNIKKALEXGLPLTEEHQHOPUDREVVPESR I TIPAJALPGGMTLK-
SIHKEVSAYMARLHAHLKVAREGEFVVFTLPVLTFVSTKAFEEYRELTHQPALTVEKW
IAANAGRI TINYSQSQDQDAGRVRFEVHSKQQLVVARNIDYTYLNSQI AVTTRLKKLVF
GFGGTFRS FEAVLRDDSFVKTQGMLVEFAXRFLSRLIFGGLIFFYNFLLKRGDAAK
RARYERNGALTTELLALGAEGAEGAAPPAAGERAFDFKTLGARAAGDAEFFEDD
LDVVFAGLSGOELDLFYCHYVPEQPDTTAAVHAQFGLLKRAFLGCHYHLIRELFGEAFE
LDVVFAGLSGOELDLFYCHYVPEQPDTTAAVHAQFGLLKRAFLGCHYHLIRELFGEAFE
LDVVFAGLSGOELDLFYCHYVPEQPDTTAAVHAQFGLLKRAFLGCHYHLIRELFGEAFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GELGYTEGQGVYNVVRSSEAATROLQAAVFGALLNATAHRDLEÄDMHRHVAARRLEPE
RLVRRYGGAPDADVAAVAERVEDTWRGALRASILDFARGLADCERQCGPGSSVGFSRY
IDWLWCLGLVEYWRREPEREGEVTORLEAFLAGHALPEDLATVGGAVERAAPLTLRALARD
IDBARIADYDRVCLFYHPRRGEWRVRDPAGGRGGECVVLWPPLWAGDRLLFDSPMORL
FDSARIADYDRVCLFYHPRRGEWRVRDPAGGRGGECVVLWPPLWAGDRLLFDSPMORL
SHEIVACRALREHARVCRVRNAASVKVLLGRKNDGDBGPGAAARAVSRALGEDDASRA
GSAASSLUVLLINMKGWRHIGDINDTWRAYLDBAGGHLMDSATVDPALDEGGRAGAGG
GRAAGGADPAGFRQQQLRQAFQTSVVNNINGMLEGYINNLFGTIERLRETNTDLATQLR
                                                                                                                                                                                                                                                                                                                                                                 /product="capsid protein"
protein_id="capsid protein"
/protein_id="AAU88072.1"
/db_xref="Ci:52843281"
/translation="MAAPSSGEEETAAAALRQAVAGDRDLVGVAEAISHQALLRMACE
/translation="MAAPSSGEEETAAAALRQAVAGDRDLVGVAEAISHQALLRMACE
/TRANSLARTOVRFTATGVSRVDVTPDRLLRFALDGGPADALTASEDYFARGCRQAAHRGF
AFAVVLAGEDHVYSLCVPPLVLPHRLSVFRPERLEDFELACLLMYLENCPRAHATASA
AFAVVLAGEDHVYSLCVPPLVLPHRLSVGFRAFILDFELACLLMYLENGFAHAFAAFSTAFAAAPSRVFRLPVRPGTNLECVAYNPDGVLSGGWAAEDFRAGLA
YLLDHNPPPILTALFEAAAPSRVFRLPVRPGTNLECVAYNPDGVLSGGWAAEDFRAGLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAPFSTYVDNVTFRGCEVMIGSMRGGLMSVALQTDSYTLTGFTYARVYAFAEEVRRKH
AAAGLAELLEESPLPYVVLRDQHGFMSVVNTNVSEFVESVEARELAMATNADYGISSM
LAMTITRSQGLSLDKVAICFTPGNLRLNSAYVAMSRTTSSEFLRMNLNPLRERHERDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DRDLELRRARRGALDREQRAADLGREPGGGAAAPDDPRADYDI I DVSKAMDDNTYVAN
SFQHQYVPS YAQDLERLSRLWEHELLRCFKI SRHTNNQGRETAI FYSSGAI ALFVAPY
FADVLRAPI PGALI TGPSGVLGEEELWEAI FKKTRVQTYLTDLAALFVADVRHAARRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MTTVGESAGDASASPPPEQPPVPSARFRDEAFLNFTSMHGIQPI
IERVRELAGHRLEPARVPRPOWFRDVAALETPADLELEFPFAVTLITGNAGSGKSTF
VQTLNEVLDCVVTGAYRIAAQNMYVLISGAFISRPINTIFHEFGFRGHVQAQLGQHF
VALASNPASVEDLQRRDLTYYWEVIADITRRAVAAGGGTEDGRGEFRALAALERTWGL
DPLALAAHVAARPAARLAWARLAAIQDTPQCASAASLAVRIDTGTARFAREYTTLTFF
                       /translation="MGEDGLAWAEESVCAVTLYAAWLPPRTRDRLHALLYLLCRDARG
DAVARFAEVAVASSELQAFYGPGEISAAGAVAAARAAASPAAAPLETLNDPALWRALY
ASALAALEREVGGAPLFVPARVGRDPRTGLVARIEAAPGGRPVAPRGAALGVDAQVAT
                                                                                                                                                                                                                       /gene="UL8"
complement(18213. .20489)
                                                                                                                                                                                                                                                                     complement (18205. .18210)
complement (18213. .20489)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VISGHILSALRDPEVLIVY"
15162. .17198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="component of
/protein_id="AAU88070...
/db_xref="GI:52843279"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="UL5"
complement(12536.
                                                                                              /codon_start=1
/product="component of he/protein_id="AAU88073.1"
/db_xref="GI:52843282"
                                                                                                                                                                                                                                                                                                                        AWWASDAPKTQTAALFYRFV"
18062. .18067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="UL7"
17149. .18039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LPAHEAADPGRRGRSRSPVDAGRPGARGPEDAWVGRGDHGRPELRRGGDGGRRP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              translation="MAERHPRGLRPPAWPRDSGPRPADDGWVQAHPTPTTMLFREALS/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="UL6"
15162. .171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="role in/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene="UL7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="UL5"
codon_start=1
                                                                                                                                                                                                gene="UL8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .18039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .17198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA cleavage/packaging"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA cleavage/packaging"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .15163)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of helicase-primase complex"70.1"
                                                                                                                                             of helicase-primase
                                                                                                                                               complex"
                                                          S
                                                                                                                   밁
                                                                                                                                                              Ś
                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 381;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148472
                                                                                                                                                                                                                       148652
                                                                                                                                                                                                                                                                                                                                                                                                                       148532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         148112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       147992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          246
                                                                       786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6
                         GGACGGCGAGCCGGCGGCCGCC
```

```
66 GCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCGCGGACG 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATGTTCGCCCCCGCCGCCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGA 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCCCGGGGGGGGGGCGACGCC
                                                   GCTGGCCCCGGCCCCGAGCCCCCGCCCCTGGGGGGCGCGACCCCGGACTGGGACCC 148771
                                                                                                    CTGGGCCGCCGCCGCCGACACGCTGCTCGCCGACGCCGAGGACGCCGCCGCCCTGGA
                                                                                                                                                                                                        GACGGCACCGCCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGGCAG
                                                                                                                                                                                                                                                                                                                                                                  GCCCGCCGCGCTGCGCCTTCTGCGCGCGCGCCCTGCCCGAGCCGGACCCCGACGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                   GCTCCTCTCCTTCGGGCTCGCCCTCGCCCGCCTCGGCGTCGACGTCCGGGGCCCTGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTCCGCCGCGGCGAGGCGCACTCGCACCGCGCCTGCGCGCCTGGGGCCTGGGGTGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGGCCGGGCGTCACGGCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACG 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCGACGGCCGCCGACTCGCCCGCGCGCGAGGCCGCCGCCGCCGCGCGCCCCGA 148411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCATGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGCGCCGCCGCCGCCTGGGCCGCGGCGAACGTGCGCTACCGCGTGCGCACGCGCCT 148291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cceceaccecercercercercerceracaceaceaceacercercaceacecereec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ĠTGCĠĂĊĠŦĊĊĠĊTĠĠĊĊĠĊĠĊĠĊĠĊĠĊĠAĊĊŦĠĊGCĊĠCĠĊĠŦĠĊŦĊĊĠĊĊŦĊĊĠĠĊĊĠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCCGCCCT 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCGCCGGCCGCCTCGTCGTCGTGGACGCCGTGCCGCCGAGGAGTGGCCCGCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ceecrrececeecaecereereeceecaecaecaecaeceeceeceecarerrececee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PURKEGAVGDVFEVREAVLRPRGHAQAVTARVLVPRGYEYFAVRAEGFSAPALVALFR
QWHITTHAAPGALE I RAFLGBEFEPRGAVDHFAVLGFFEWFILKVPAGAAAVPAAA
LTAHASLGAGWPAGAALAPARLMAAAAAGAPGRLSPALRRPATFGLELLDPPAVIG
PVCLARFRFPGLEARLAAALCGLGLEPRADPRDPLARGARCWRALAADARPWARAVAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (20544.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIDLYPRPLVLPPIDCAHHLRDVLAEAEAVLRGALAGLWGEDGGFAYPFEERFLFLFD
PSGAAGAHAVAGRGSRKA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LALAEAREECPAFARVLDGVVAAVGLRLEAAAGDVDLAVCGNEGASLWGVLNVDPQGA
AGPAAVAEGRARALEGVAGEALAGGGLLREEPEPPSLELEGIYTHAVLWSQTGAWFWNA
RTDADRLEGFPPQRGPAYAAAAATRARRALRGAVAAYAEGGAEKARLAAEBALDGLVEA
AFARRLDAEYWAVAEGPSDPGDTPPAAALRGGGLLDSERHSRRVVRVCGGPDGGSVAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="UL9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13.3%;
47.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       o
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 128.4; DB Pred. No. 0.012; 0; Mismatches 4
807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             150715;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                      785
                                                                                                                                                                                                                                                                                                               665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          545
                                                                                                                                                                                                           725
                                                                                                                                                                                                                                                                                                                                                                                                                      605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          148171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  148051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65
                                                                                                                                                          148711
                                                                                                                                                                                                                                                              148651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         148531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           148351
                                                                                                                                                                                                                                                                                                                                                                     148591
```

```
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 11
AY714813/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                         polyA_signal
polyA_signal
polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
             SdC
                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tyler,S.D., Peters,G.A. and Severini,A.

Complete genome sequence of Cercopithecine herpesvirus 2 (SAB) and comparison with other simplexviruses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (11-AUG-2004) Health Canada, National Microbiology Laboratory, 1015 Arlington St., Winnipeg, Manitoba R3E 3R2, Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cercopithecine herpesvirus 2
Cercopithecine herpesvirus 2
Viruses; dsDNA viruses, no RNA stage; Herpesviridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AY714813 1507:
Cercopithecine herpesvirus
AY714813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tyler, S.D., Peters, G.A. and Severini, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Virology (2004) In press
2 (bases 1 to 150715)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alphaherpesvirinae.
1 (bases 1 to 150715)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AY714813.1 GI:52843273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submission
/gene="UL2"
10235. 1007
                                                                                                                                                                                                                                                     /gene="UL1"
9469. .10167
/gene="UL1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/product="virion glycoprotein L"
/protein_id="AAUB8066.1"
/protein_id="AAUB8066.1"
/db_xref="GI:52843275"
/translation="MAVLRGVLLASLLFRCSFYNLLLSTPADSSTTEYLIQSVAARTV
/translation="MAVLRGVLLASLLFRCSFYNLLLSTPADSSTTEYLIQSVAARTV
ADVLKVGCLDLPADGVTWRYEAPRSIDYARIDGIFLRYHCPGLDTVLWDGTAQRAYWV
ADVLKVGCLDLPADGVTWRYEAPRSIDYARIDGIFLRYHCPGLDTVLWDGTAQRAYWV
ADVLKVGCLDLPADGVTWRYEAPRSIDYARIDGIFLRYHCPGLDTVLWDGTAQRAYWV
                                                                                                                                                                                                                                                                                                                           complement (8315. .8320)
                                                                                                                                                                                                                                                                                                                                                                   4856
                                                                                                                                                                                                                                                                                                                                                                                                                     PTQARAQTRAQTQAQTOTQAQAQAQAQAQTQTQTQARPETQTQAQTQARAQTQTQTQA
RKRPASGAGGASGSRGPKRASI.PAPPDABARBAQDPBAPDLAAAAPPBASGA
RKRPASGAAPPBPABAPAHGSSLGPRPABRQGPKKCARKTHHYDDADRAPAASGETRYL
PISGVSSVVAMAPYLNKTVTGDCLPVLDMETGAIGAYYVLVGRDCNLARCLADABPQW
                                                                 KPRRNSTEPSRPRR"
                                                                                   EYSRTRRCLGRDTPGLFDEPRLRSPLSAPGDEAAPQPFSPAAPTSSAPPARRDRKPRF
                                                                                                                                                                                                                                                                                                                                                                                                      ARRSRLPEAAPGCVSPPEYPGDPAHGLWMTPVGGMLFEQGALLGGRSFHSLDSRHPWT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Cercopithecine herpesvirus
/mol_type="genomic DNA"
/db_xref="taxon:10317"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      join(2178. .2225,2448. .3020,3398. .4669)
/gene="RL2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .150715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="RL2"
                                                                                                                                                                                                                                note="complexes with gH; involved in membrane fusion"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="multifunctional regulatory protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               note="terminal copy of long repeat region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'note="a sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="SA8"
                                                                                                                                                                                                                                                                                                                                                                   .4861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        150715 bp
virus 2, cc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        op DNA lin
complete genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VRL 04-OCT-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Canada
                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            polyA_signal
polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SdO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 polyA_signal
                                /gene="UL6"
15162. .17198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11076. .11081
11130. .11813
/gene="UL3"
11130. .11813
/gene="UL3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (11832. .11837)
complement (11897. .12511)
/gene="UL4"
                                                                                                  VISGHILSALRDPEVLIVY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (12536. .15163)
       note="role in DNA cleavage/packaging"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene="UL5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="UL5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (12536. .15163)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="AAU88069.1"
/db_xref="GI:52843278"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/product="UL4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nuclear bodies"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="colocalizes with ICP22 and UL3 in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (11897. .12511)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11809. .11814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DPASEDPWQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SPLSRVPFGSCRHFCLANQYLRERSLAPIDWST"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /trans1_except=(pos:10235...10237,aa:Met)
/product="uraci1-DNA g1ycosylase"
/protein_id="AAU88067.1"
/db_xref="GI:52843276"
                           gene="UL6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="UL4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="proposed start
codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'gene="UL2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTG"
```

```
/codon_start=1
/product="UL3"
/product="UL3"
/protein_id="AAU88068.1"
/protein_id="AAU88068.1"
/db_xref="GI:5284327"
/translation="MSAVGAGAVPSTLAVLASWGWAFAPHDGPPARAAEAPASPAPEA
PTGHPVPPRADDRAPPGVRAPDPDHYAFDTWFMVSSYUBLGRRQLTDTIRKDLRLSLV
NLAIACTKTSSFSGTAGRARPRARHGPGHREPPSHKSLQMFVLCQRPDATRYRDDQLRA
NLAIACTKTSSFSGTAGRARPRARHGPGHREPPSHKSLQMFVLCQRPDATRYRDDQLRA
AAAGLAELLEES PLPYVVLRDQHGFMS VVNTNVSE FVES VEARELAMATNAD YGISSM
LAMTITRSQGLSLDKVAICFTPGNLRLNSA YVAMSRTTSSE FLRMNLNPLRERHERDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="msasassatiayslhgaatssacylpdaeqvvcafesgtraias
RGCLRHDALSRGAVVVRQTFVGLLVMVDCRTEFCAYRFVGRSERQRLERWWDTTLCAY
PFDSWVSSTRGESARSPTAGIATVVWGEDSIYITVTVYGSPPEGEAGAPPRLPPPPPGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="colocalizes with ICP22 and UL4 in small, dense nuclear bodies"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PELANPLTARLMAEYERRCRAEEVLPPREDVFSWTRYCTPDEVRVVIIGQDPYHQPGQ
AHGLAFSVRPGTPAPPSLRNILTAVRNCCPEATMSGHGCLEKWARGGVLLLNTTLTVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APDAPSPPAVSPASAETGAAADLLVEVMKEIQLSPTLGFGPCDA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VIASRKPRKYYTRSSDGRISPAVPVFVHEFVSDAPVHVHRDNVIAPVVPRRRTSTRLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rgepashaqigwdrfvgsvvrrlaasrpglvfmlwgahaqsairpdprvhrvltyahp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             translation="MTFDSPARPALGLDDTPAGRPPSLDWPEFRRRFLVGDAWRPLLE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           small,
```

```
Query Match
Best Local
                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                polyA_signal
polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                  126017
                                              126
                                                                                                                                                                                                                                                                      381;
                                                                                                                                    99
                                                                                                                                                                                                                          σ
                                                                                                                                                                                                                                                                                             Similarity
                                                                                      GCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCGGGGCCGGAACTCGCGGCCGCCCT
                                                                                                                                  GCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCGGGACG
                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                    /product="component of helicase-primase complex"
/protein id="ANUB8073.1"
/db_xref="di="S2843282"
/db_xref="di="S2843282"
/db_xref="di="S2843282"
/db_xref="WGEDGLAWAEESVCAVTLYAAWLPPRTRDRLHALLYLLCRDARG
/translation="MGEDGLAWAEESVCAVTLYARALAASPAAAPLETLNDPALWRALY
ASALAALEREVGGAPLFVPARVGRDPRTGLVARIEAAPGGRPVAPARGAALGVDAQVAT
ASALAALAHCREVGAPLFVPARVGRDPRTGLVARIEAAPGGRPVAPARGAALGVALF

DFLALAAHVAARPARALAWARLAAIOOTPOCASAASLAVRIDTGTARFAREYTTLTFP
PVRKEGAVGDVFEVREAVLFPRGHAQAVTARVLVPRGYEYFAVRAEGFSAPALVALFR
QWHLTVHAAPGALPFIFAFLCPEFEPRGGAVDHFAVLCPFGWFTLKVPAGAAAVPAAA
LTAHAELAGAWPAAGAARALAPARLWAAAAAGAPGRLSPATATFGLIRLDPPAVIG
PVCLARFRFPCGLEARLAAALCGLGLEFRADPRODFLARGARCWRALAADAREWARAVAA
LALAEARBALEGVAGEALAGGCLLEFEADFDDLAVGGREGASLWGVLNVDPQGA
AGPAAVERARAALEGVAGEALAGGGLLEREEPPFSLELEGIYTHAVLWSQTGAWFWNA
AGPAAVERARAALEGVAGEALAGGGLLEREAFPPSLELEGIYTHAVLWSQTGAWFWNA
AGPAAVERARAALEGVAGEALAGGGLLEREAFARALDSERLDGIVLE
AFARRLDAEYWAVAEGFSDPGDTPPAAALRGALAGEAKDGIVLS
AFARRLDAEYWAVAEGFSDPGDTPPAAALRGALAGEMGEDGGFAYPFEERFLFIFP
POLLYPREVULPFIDCAHHLRDVLAEAEBAVLRGALLAGEMGEDGGFAYPFEERFLFIFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17149. .18039
/gene="UL7"
17149. .18039
                                                                                                                                                                                                                                                                                                                                                          /gene="UL9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (18213. .20489)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (18205. .18210)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YLLDHNPPPILTALFRAAPSRVFRLPVRPGTNLECVAYNPDGVLSGGWAAEDFRAGLA
AWWASDAPKTQTAALFYRFV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /trānslation="MAAPSSGEEETAAAALRQAVAGDRDLVGVAEAISHQALLRMACE VRQAAGRDVRFTATGVSRVDVTPDRLLRFALDGGPADALTASEDY PARCRGQAAHRGF AFAVVLAGEDHVYSLCVPPLVLPHALSVFRPEREDFELACILMYLENGPAHATASA FAVKISAWLAAVGRRTSPFDRVRCLLLRSCQWMLNTLMFMVHVEPFDDRYVLPHWCMAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="capsid protein"
/protein_id="AAU88072.1"
/db_xref="GI:52843281"
                                                                                                                                                                                                                                                                                                                                                                                                        PSGAAGAHAVAGRGSRKA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (18213. .20489)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18062. .18067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LPAHEAADPGRRGRSRSPVDAGRPGARGPEDAWVGRGDHGRPELRRGGDGGRRP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="capsid protein"
/protein_id="AAU88071.1"
/db_xref="GI:52843280"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="UL8"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="UL8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="UL7"
/note="role in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    codon_start=1/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
                                                                                                                                                                                                                                                                                         13.3%;
                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                         Score 128.4; DB 14; Pred. No. 0.012;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA cleavage/packaging
                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                   .23183)
                                                                                                                                                                                                                                                                      421;
                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                150715;
                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                  Gaps
125838
                                         185
                                                                                                                                                                              125958
                                                                                                                                  125
                                                                                                                                                                                                                          65
                                                                                                                                                                                                                                                                  0;
```

8 8 8 8 8

```
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AC149968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                125477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          125597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                125717
Muzny, D.M., Adams, C., Adio-Oduola, B., Ali-osman, F.R., Allen, C., Alsbrooks, S.L., Amaratunge, H.C., Are, J.R., Ayele, M., Banks, T., Barbaria, J., Benton, J., Binage, K., Blankenburg, K., Bonnin, D., Bouck, J., Bowie, S., Brieva, M., Brown, E., Brown, M., Bryant, N.P., Buhay, C., Burch, P., Burkett, C., Burrell, K.L., Byrd, N.C., Carron, T.F., Carter, M., Cavazos, S.R., Chacko, J., Chavez, D., Chen, G., Chen, R., Chen, Z., Chowdhry, I., Christopoulos, C., Cleveland, C.D., Cox, C., Coyle, M.D., Dathorne, S.R., David, R., Davila, M.L., Davis, C., Davy-Carroll, L., Dederich, D.A., Delaney, K.R., Delgado, O., Denn, A.L., Ding, Y., Dinh, H.H., Douthwaite, K.J., Draper, H., Dugan-Rocha, S., Durbin, K.J., Earnhart, C., Edgar, D., Edwards, C.C., Elhaj, C., Escotto, M., Falls, T., Ferraguto, D., Flagg, N., Ford, J., Foster, P., Frantz, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Strongylocentrotus purpuratus
Eukaryota; Metazoa; Echinodermata; Eleutherozoa;
Echinoidea; Euechinoidea; Echinacea; Echinoida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Strongylocentrotus purpuratus SEQUENCE, 16 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Strongylocentrotidae; Strongylocentrotus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Strongylocentrotus purpuratus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HTG; HTGS PHASE1; HTGS DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AC149968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AC149968.1 GI:49217202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGACGGCGAGCCGGCCGGCC 125216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cecccceeecececeacec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTGGCCCCGGCCCCGAGCCCCCCCCCCCCGGGGGGGGCGACCCCGGACTGGGACCC 125238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGGCCGGCCGCCGACACGCTGCTCGCCGACGCCGAGGACGCCGCCGCCCTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGCGTCCGCGCGCCCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACGGCACCGCCCCACCAGGTGCTCCTCGCCCTCGTGCCCGTGTGCTCGGCGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCGCCGCGCTGCGCGCCTTCTGCGCGCGCGCGCCCTGCCCGAGCCGGACCCCGACGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ecrecrerentes de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTCCGCCGCGGCGAGGCGCACTCGCACCGCGCCTGCGCGCCTGGGGGCCTGGGTGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATGTTCGCCCCCGCCGCCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGGCCCGACACCGCCGTGCCGCTGCCGCCGCGCGAGTACCGCCGCGCCGTGCTGCCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGCATGGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCCTCAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGCCGCCGCCGCCTGGGCCGCCGGCAACGTGCGCTACCGCGTGCGCACGCGCCT 125718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGGGACGCGGACCTCGTCCTGCCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ceeecceeecercaceeccrecrecrecrecrecrecaceeceeceeceecaceccerace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 1 to 136753)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  136753 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA linear H
R3-32A21, WORKING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HTG 25-JUN-2004
IG DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      125298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             725
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      125538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             125598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                125658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         125358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            125418
```

```
TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Harris, C., Harris, K., Harris, K., Harris, C., Harris, C., Harris, C., Harris, K., Harris, K., Harris, K., Harris, K., Harris, H., Haves, M., Holloway, C., Hollins, B., Homei, F., Howard, S., Huber, J., Hulyk, S., Hume, J., Jackson, L.E., Jacobson, B., Jia, Y., Johnson, R., Jolivet, S., Joudah, S., Kratovic, J., Kureshi, A., Landry, N., Leal, B., Lewis, L.C., Lewis, L., Lichtarge, O., Lieu, C., Liu, J., Liu, W., Loulseged, H., Lozado, R.J., Lu, X., Lucier, A., Lucier, R., Luna, R., Ma, J., Massey, E., Mawhiney, E., McLeod, M.P., Meador, M., Martinez, E., Miner, G., Miner, Z., Mitchell, T., Mohabbat, K., Morgan, M., Morris, S., Moser, M., Neal, D., Newtson, J., Newtson, N., Nguyen, A., Nguyen, N., Nickerson, E., Nwokenkwo, S., Oguh, M., Okwuonu, G., Oragunye, N., Oviedo, R., Pace, A., Payton, B., Peery, J., Perez, L., Pimus, E., Pu, L.L., Quiles, M., Ren, Y., Rives, M., Rojas, A., Rojubokan, I., Rolfe, M., Ruiz, S., Savery, G., Scherer, S., Scott, G., Shen, H., Shooshtari, N., Sisson, I., Scherer, S., Scott, G., Shen, H., Shooshtari, N., Sisson, I., Sutton, A., Svatek, A., Tabor, P., Tamerisa, A., Tanerisa, K., Tang, H., Shooshtari, N., Sisson, I., Sutton, A., Svatek, A., Tabor, P., Tamerisa, A., Tanerisa, K., Tang, H., Shooshtari, N., Sisson, I., Ward-Moore, S., Warren, R., Washington, C., Watliamson, A., Warren, R., Washington, C., Watliamson, A., Wilczyk, R., Wooden, S., Ward-Moore, S., Marren, R., Washington, C., Watlington, S., Wu, Y., F., Zhou, J., Zorrilla, S., Nelson, D., Neisson, D., Wu, Y., F., Zhou, J., Zorrilla, S., Nelson, D., Neisson, D., Wu, Y., F., Zhou, J., Zorrilla, S., Nelson, D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
Direct Submission
Submitted (25-JUN-2004) Human Genome Sequencing Center, Department of Molecular and Human Genetics, Baylor College of Medicine, One Navlor Plaza, Houston, TX 77030, USA
                                                                                                                                                                                                                                                                    * NOTE: Estimated insert size may differ from sequence length
(see http://www.hgsc.bcm.tmc.edu/docs/Genbank draft data.html).

* NOTE: This is a "working draft' sequence. It currently

* consists of 16 contigs. The true order of the pieces

* is not known and their order in this sequence record is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Baylor Plaza, Houston, TX 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Worley, K.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gabisi,A., Gao,J., Garcia,A., Garner,T., Garza,N., Gill,R., Gorrell,J.H., Guevara,W., Gunaratne,P., Hale,S., Hamilton,K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                    arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence
                                                                                                                                                                               as soon as it is
be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 136753)
                                                                                                                                                                                                                                                                                                                                                                                   Assembly program: Phrap; version 0.990329 Consensus quality: 128020 bases at least Q40 Consensus quality: 129713 bases at least Q30 Consensus quality: 130554 bases at least Q30 Consensus quality: 130554 bases at least Q20 Estimated insert size: 129513; sum-of-contigs estimation Quality coverage: 5x in Q20 bases; sum-of-contigs estimation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Web site: http://www.hgsc.bcm.tmc.edu/Contact: hgsc-help@bcm.tmc.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequencing vector: Plasmid; Chemistry: Dye-terminator Big Dye:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Center project name: SPCA
Center clone name: R3-32A21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Center code: BCM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Center: Baylor College of Medicine
 1102
1202
2620
2720
2720
4081
4181
5492
5592
6725
                     4080:
4180:
5491:
5591:
6724:
                                                                                                           1201:
2619:
2719:
                                                                                                                                                                                                     available and the accession number will
contig
gap of
gap of
contig
gap of
contig
gap of
                                                                                       unknown
of 1361
                                                                                                                            unknown
of 1418
                 unknown
of 1133
                                                   unknown
of 1311
                                                                                                                                                                of 1101
                                                 n length
8 bp in length
n length
1 bp in length
n length
n length
bp in
length
               length
bp in length
                                                                                                                                                              bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100% of reads
                                                                                                                                                                                                                                                                                                                                              8
                                                                                         밁
                                                                                                                        Ś
                                                                                                                                                              밁
                                                                                                                                                                                                 S
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                       3485
                                                                                                                                                                                                                                                                                                                                                                                      3366
                 3658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3246
                                                                                                                                                                                                                                                                                                                451
                                                                                                                                                                                                                                                                           391
                                                                                                                                                                                                                                                                                                                                                                                                                           271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        151 GTCACCGCGCGGGGCCCGAACTCGCGGGCCCCTCCGGGACCGCGGACCTCGTCCTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   211 GCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGACCCGGCTCATGCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31 GGCGGCAGCGGGGGGGCGGCCATGTTCGCCGGGCTGCTGCGGGAGGCGGGCAGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                 GCCCGCCTCGGCGTCGACGTCCGGGCCCTGGCGGCGACGGCACCGCCCCCACCACGAGGTG 630
                                                                                                                      ACGACGGCGGCCACCCAGGCCTGACGCACGCCGTGCTCCTCTCCTTCGGGCTCGCCCCTC
                                                                                                                                                                                                                                       ACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCACGGCCCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                       GGCGCGCTGCTCGCCGACACCCCTGTCCGTCCGGACCGGGCATGGCCGCGGAGCTCGCGGCC
                                                                                         CGGCTCGTCGAGGGCGGCGGCAGGCCCGTACGGCTCACGGCGGAGGAGCACGACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18988
20661
20761
31113
31213
47008
47108
64348
64448
85078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10878
14451
14551
18888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9665
10778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6825
8093
8193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /mol_type="genomic DNA"
/db_xref="taxon:7668"
/clone="R3-32A21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Strongylocentrotus purpuratus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 L. .136753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                location,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     136753:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85077:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9664:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10877:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18987:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gap of contig gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gap of unknown length contig of 51576 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    contig
gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gap of unknown length contig of 20630 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 124;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches 404;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          f unknown length
g of 15795 bp in
f unknown length
g of 17240 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g of 1673 bp in 1
f unknown length
g of 10352 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of 1268
unknown
of 1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of 4337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of 3573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of 1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bp in l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bp in
length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bp in
length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 136753;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
```

3657 570 3597 3537

450

510

3484 390 3424 3365

330

3305

210 3245 150

270

3185

90

COMMENT

밁 Ś 밁 Ş 밁 Ś 밁

```
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 13
AC149968/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                           Bouck, J., Bowie, S., Bireva, M., Brown, E., Brown, M., Bryant, N. P., Buhay, C., Burch, P., Burkett, C., Burch, E., Brown, M., Bryant, N. P., Bhay, C., Burch, P., Burkett, C., Burrell, K.L., Byrd, N.C., Charez, D., Chen, G., Chen, R., Chen, Z., Chowdhry, I., Christopoulos, C., Cleveland, C.D., Cox, C., Coyle, M.D., Dathorne, S.R., David, R., Dugan, R.Ccha, S., Durbin, K.J., Barnhart, C., Edgar, D., Edwards, C.C., Elhaj, C., Bacotto, M., Earnhart, C., Edgar, D., Edwards, C.C., Elhaj, C., Bacotto, M., Earnhart, C., Gabis, A., Gao, J., Garrer, T., Garza, N., Gill, R., Gorrell, J.H., Guevara, W., Gunaratne, P., Hale, S., Hamilton, K., Harris, C., Harris, K., Hart, M., Havlak, P., Hawes, A., Hernandez, J., Hernandez, O., Hodgson, A., Hogues, M., Holloway, C., Hollins, B., Hewis, L.C., Herris, C., Hollins, B., Jia, Y., Johnson, R., Jolivet, S., Joudah, S., Karlsson, E., Kally, S., Khan, U., King, L., Korvah, J., Kovar, C., Kratovic, J., Kureshi, A., Landry, N., Leal, B., Lewis, L.C., Lewis, L., Li, J., Li, Z., Lichtarge, O., Lieu, C., Liu, J., Liu, M., Loulseged, H., Lozado, R.J., Lux, M., Martin, R., Martin, R., Martin, R., Walle, R., Wassey, E., Mawhiney, E., McLeod, M.P., Meador, M., Metzker, M., Massey, E., Mawhiney, E., McLeod, M.P., Meador, M., Metzker, M., Massey, E., Mawhiney, E., Nokentwo, S., Oguh, M., Okwuonu, G., Oragunye, M., Koterson, E., Nokentwo, S., Oguh, M., Okwuonu, G., Oragunye, M., Rojas, A., Rojubokan, I., Rolfe, M., Ruiz, S., Savery, G., Scherey, S., Scott, G., Shen, H., Shooshtari, N., Sisson, I., Sodergreen, E., Sonake, F., Sparks, A., Stanley, H., Stone, H., Shooshtari, N., Sisson, J., Ware, P., Sparks, A., Stanley, H., Stone, H., Wang, Q., Wang, S., Walle, S., Walle, S., Worley, K., Wang, Q., Wang, S., Walle, S., Walle, S., Walle, S., Worley, K., Wang,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Muzny,D.M., Adams,C., Adio-Oduola,B., Ali-osman,F.R., Allen,C. Alsbrooks,S.L., Amaratunge,H.C., Are,J.R., Ayele,M., Banks,T., Barbon,J., Bimage,K., Blankenburg,K., Bonnin,D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Strongylocentrotus
SEQUENCE, 16 unorde
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Strongylocentrotidae; Strongylocentrotus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Strongylocentrotus purpuratus
                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Echinodermata; Eleutherozoa; Echinoidea; Euechinoidea; Echinocea; Echinoida;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Strongylocentrotus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AC149968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAGGGGCGGGGCCCCGGCGCGGGGGCCCGGGG 3929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGCCATCCCGGGGGATGCGACGGCGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCGCCGCGCTGGTCGACGACGACCGGACGCGACGCCCCGGGCGCGCCGACGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCGGTCCAACCCCCGGGCGCGTCCGCGCGCGCGCGCGCTCGCCGAGGCCCTGCGCTCCT 748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGCTCGCCTCCTGGCCCGTGTGCTCGGCGGCAGCC--CCGAGGTGTACGGGGACATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 136753)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 GI:49217202
_PHASE1; HTGS_DRAFT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     centrotus purpuratus
16 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                purpuratus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 136753 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R3-32A21, WORKING DRAFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Echinozoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HTG 25-JUN-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Allen, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 (bases 1 ... Worley, K.C.
Direct Submission
25-JUN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (25-JUN-2004) Human Genome Sequencing Center, Department of Molecular and Human Genetics, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: Estimated insert size may differ from sequence length (see http://www.hgsc.bcm.tmc.edu/docs/Genbank_draft_data.)
NOTE: This is a "working draft' sequence. It currently consists of 16 contigs. The true order of the pieces is not known and their order in this sequence record is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  as soon as it
be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to 136753)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequencing vector: plasmid;
Chemistry: Dye-terminator Big Dye: 100% of reads
Assembly program: Phrap; version 0.990329
Consensus quality: 128020 bases at least Q40
Consensus quality: 129713 bases at least Q30
Consensus quality: 130554 bases at least Q20
Estimated insert size: 129513; sum-of-contigs estimation
Quality coverage: 5x in Q20 bases; sum-of-contigs estimation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Center project name: SPCA
Center clone name: R3-32A21
----- Summary Statisti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: hgsc-help@bcm.tmc.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Web site: http://www.hgsc.bcm.tmc.edu/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Center code: BCM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Center: Baylor College
                                                                                                                                                                                                                   14551
18888
18988
20661
20761
31113
31213
47008
47108
64348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9665
10778
10878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4081
                                                         /organism="Strongylocentrotus purpuratus"
/mol_type="genomic DNA"
/db_xref="taxon:7668"
                                                                                                                              1. .136753
                                                                                                                                                Location,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         --- Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         it is available and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Project Information
                                                                                                                                                                                                                                                     /: gap 6.
60: contig of ...
760: gap of unknown ...
7112: contig of 10352 bp ...
7ap of unknown length ...
7ap of 15795 bp in ...
7ap of 15795 bp in ...
7ap of 15795 bp in ...
7ap of 15795 bp in ...
                                                                                                                                                'Qualifiers
                                                                                                                                                                                                                                          gap of unknown length contig of 15795 bp in gap of unknown length contig of 17240 bp in gap of unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gap of contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gap of
                                                                                                                                                                   contig of 20630 bp in
gap of unknown length
contig of 51576 bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                      gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gap o
conti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gap o
conti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gap of
contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gap of
contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Statistics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of Medicine
                                                                                                                                                                                                                                                                                                                                                                                                                                      of 3573
unknown
of 4337
                                                                                                                                                                                                                                     unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of 1311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of 1113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of 1372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of 1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of 1133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of 1361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of 1418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              bp in l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bp in ]
length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                         ni dq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         accession number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              in length
                                                                                                                                                                                                                 in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                                                                             length
                                                                                                                                                                                                                                                                                                                                                                                                                                      length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _data.html)
```

```
RESULT 14
PM11H12G/c
LOCUS
DEFINITION
                                                                                                                                                    맑
                                                                                                                                                                                 S
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Mat
Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity
nes 427; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Match
                                                                                                                                                                                                                                            3018
                                                                                                                                                                                                                                                                                                                                      3078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3858
                                                                                                                                                                                              968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          245
       PM11H12G
Penicillium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          в
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGGCGGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CACGCCGTGCTCCTCCTTCGGGCTCGCCCTCGCCCCCGCCTCGGCGTCGACGTCCGGGCCC
                                                                                                                                                                                                                                            ACCGTGCCGACGCCCCGGGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                              CGCGCCGGGCGCCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCAGGGACGGGCCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCCGGCGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCG----CCGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGACGGGCATGGCCGCGGAGCTCGCGGCCCACGCCCCGGCGTCCAGCACGTGGGCCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGACGCGGACCT---CGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ectrococcecacercercercescecaceaecececescescecaceaececec
                                                                                                                                                                                              CGGGCCAGGACCACTGCCAG
                                                                                                                                                                                                                                                                                        CCGGGAACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGACGCCTGCCTGGTGGGCGACGTCACCGCGCGCGGGCCGAACTCGCGGCCGCCCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
    1393 bp
marneffei STS, clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 122.4; DB 2;
Pred. No. 0.037;
0; Mismatches 481;
                                                                                                                                                                                              915
DNA 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
  sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      136753
                          STS 29-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12;
  tagged
       site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3739
                                                                                                                                                                                                                                            2959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                     δ
                        S
                                                                      밁
                                                                                                                S
                                                                                                                                                                     밁
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1004
                             654
                                                                                                                                                                                                                                                                                                                                                       704
                                                                                                                                                                                                                                                                                                                                                                                                                                                    764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           419;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 (bases 1 to 1393)
Danchin,A. and Pascal,G.
Direct Submission
Submitted (08-WAR-2002) Danchin A., HKU-Pasteur Research
Dexter HC Man Building 8, Sassoon Road, Pokfulam, Hong Kc
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yuen,K.Y., Pascal,G., Wong,S.S., Glaser,P., Wo
Cai,J.J., Cheung,E.Y., Medigue,C. and Danchin,
Exploring the Penicillium marneffei genome
Arch. Microbiol. 179 (5), 339-353 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Penicillium marneffei
Penicillium marneffei
Eukaryota; Fungi; Ascomycota; Pezizomyc
Eurotiales; Trichocomaceae; mitosporic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AL684264
AL684264.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              h 12.3%;
Similarity 45.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2640520
  GCTCGGCGGCAGC---CCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2595073
                                                                         GGCCCTGGCGGCGACGGCACCGCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGT
                                                                                                                                                                   AGGCCCGTACGGCTCACGGCGGAGGAGGACGACCGACCGGACGACGGCGGCCACCCAG-GCCCT
                                                                                                                                                                                                                                                                                                                                                          escencia, escencia en la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la const
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccegacegecareeccecegeaecrcecegecececegecerce----aecacere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGCCCTCCGGGACGCGGACCTCGTCCTCGCCGTACACGAGGACGTGGCCCTCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    egeacegecegacecereceregeses and second contractions of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Penicillium marneffei"
/mal_type="genomic DNA"
/db_xref="taxon.37727"
/clone="pml1h12.g"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .1393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GI:19338009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 119.6; DE Pred. No. 0.45; 0; Mismatches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pezizomycotina; Eurotiomycetes; itosporic Trichocomaceae; Penici
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           485;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           W00, P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Penicillium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                             710
                                                                                                                    653
                                                                                                                                                                                                                                                               585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1005
                                                                           465
                                                                                                                                                                     525
                                                                                                                                                                                                                 593
                                                                                                                                                                                                                                                                                                                                                          645
                                                                                                                                                                                                                                                                                                                                                                                                     474
                                                                                                                                                                                                                                                                                                                                                                                                                                                    705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    945
```

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
AF533768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                      gene
                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                    repeat_
                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        169
                                                                                                                                                                                                                                                 _region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cercopithecine herpesvirus 1 (monkey B virus)
Cercopithecine herpesvirus 1
Cercopithecine herpesvirus 1
Viruses, daSDNA viruses, no RNA stage, Herpesviridae,
Alphaherpesvirinae, Simplexvirus.
1 (bases 1 to 156789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        156789 bp 1
Cercopithecine herpesvirus 1 strain
AF533768
                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (31-JUL-2002) Department of Biology, University, 24 Peachtree Center Ave, Atlanta,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Complete sequence and comparative analysis of the genome of herpes B virus (cercopithecine herpesvirus 1) from a rhesus monkey J. Virol. 77 (11), 6167-6177 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Perelygina,L., Zhu,L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Perelygina, L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2262847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF533768.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12743273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NNGNGGGNNGNCNCCNNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGCNCCCGGCNGCNCGGGCGCGNTGCNGGCG----CGNGNGCGCGCGCCCCCCGCGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCGCCGGGAACCTCGACGCCGTCTTCGGGGAACTCCGCCGGCTCATGGGAACCGGAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGGCGAGAAGGACCGATG 968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCGGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCCGGACCGTGCCGACGCCCCCGGGCGCGCCGACGCCCCCGGGCCATCCCGGGGGATGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 156789)
                                                                                                                                                                                                                                                                                                                                                                                                                                            Submission
                                          /product="immediate early protein ICPO"
/protein id="AAP41493.1"
/db_xref="GI:30844317"
/translation="MRPSRGLGAPARPAAEAPAEDALEDDDLVLLSRYFFPDTDSDDD
DDDDAAAVVDDDPASDAAAADGTGLSAPAPPRETCAVCTERIDEAQLCNTFPCLHRF
CIPCLKTWLPMRNSCPLCNAANSYLIVGVQANGSYSTIPVVNDPRTRRDAEDAVRAGT
AVDFIWVDRPGEPAPSSVTLGGRTVRALSPPARMGRPGVVGRVSRPPRSPPPPPAPPA
PDSPPASLSLRPSADPTFHPAPARGARAPAARGDAARAHRASTRGGARGGARGAAPR
APAPAGNPAPTVIGDSPPASPRRPSGAAAPPVVPVAPRPRPAAEPPAPAPGAAPRQPA
                                                                                                                                                                                                                      2194. .4636
                                                                                                                                                                                                                                                    224.
                                                                                                                                                                                                                                                                                                                                                 /mol
                                                                                                                                                                                     /gene="RL2"
join(2194. .2241,2461.
                                                                                                                                                                                                                                                                                              /specific_host="Macaca
/db_xref="taxon:10325"
                                                                                                                                                                                                                                                                                                                                 /strain="E2490"
                                                                                                                                           codon_start=1
                                                                                                                                                      'note="modulator of cell state and gene expression"
                                                                                                                                                                        gene="RL2"
                                                                                                                                                                                                                                  note="terminal copy of large repeat region"
                                                                                                                                                                                                                                                                 'note="a sequence"
                                                                                                                                                                                                                                                                                                                                                              organism="Cercopithecine
                                                                                                                                                                                                                                                                                                                                                                                              ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                 .156789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:30844242
                                                                                                                                                                                                                                                                                                                                               _type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zhu, L., Zurkuhlen, H. and Hilliard, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zurkuhlen,H.,
                                                                                                                                                                                       .3003,3125. .4636)
                                                                                                                                                                                                                                                                                                                mulatta"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
n E2490,
                                                                                                                                                                                                                                                                                                                                                              herpesvirus 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mills, R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complete genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                             , Georgia State
GA 30303, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Borodovsky, M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VRL 19-MAY-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            exon
                                                                                                                                         SdO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
```

```
/gene="UL1"
9072. .9746
/gene="UL1"
/note="proposed start codor
/codon start=1
/trans1_except=(pos:9072. .
/product="virion glycoprote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="UL2"
9814. .10575
/gene="UL2"
/note="proposed &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10711. .11394
/gene="UL3"
10711. .11394
/gene="UL3"
/codon_start=1
/product="UL4"
/product="UL4"
/protein_id="AAP41422.1"
/protein_id="AAP41422.1"
/db_xref="GI:30844246"
/translation="MAASPATAYSLHGTATSSACVLPDAEQVVCAFDGGTRAIASRG
/translation="MAASPATAYSLHGTATSSACVLPDAEQVVCAFDGGTRAIASRG
CLROOTLSRGAVVVROFVGGLLVMVDCRTDFCAYRFVGRSGRQRLERWWDTNLCAYPF
DSWVSSTRGESVRSPTAGIVTVVMGEDSIYITVTVVGSPPGGEAEAPLPDPSSPPLDA
                                                                                                                                                                                                                                                                                                                                                   /Godon_start=1
/product="UL3"
/product="UL3"
/protein_id="AAP41421.1"
/protein_id="AAP41421.1"
/db_xref="GI:30844245"
/translation="MSSLEAAAVPSTLAVLASWGWAFAPQDSPRAWAADPAAHTEPEA
/translation="MSSLEAAAVPSTLAVLASWGWAFAPQDSPRAWAADPAAHTEPEA
LALLAPAPPATTDEPPDPRALDADHVAFDTMFWVSSVDELGRRQLTDTIRKDLRLSLV
NFAIACTKTSSFSGAAGGARPRDQREFGRREPPSHKSLQMFVLCQRANATRVREQLRA
VIASRKPRKYYTRSSDGRISPAVPVFVHEFVSDAPVYIHRDNVIGPPGPPHRTPPRCP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/codon_start=1
/transI except=(pos:9814...9816,aa:Met)
/product="uraci1-DNA glycosylase"
/protein_id="AAP41420.1"
/protein_id="AAP41420.1"
/db_xref="GI:30844244"
/translation="MTFDSQPPSRPSIGLDDAHADRPPALDWTGFRRFLVGEAWRPV
/translation="MTFDSQPPSRPSIGLDDAHADRPPALDWTGFRRFLVGEAWRPV
/translation="MTFDSQPPSRPSIGLDDAHADRPCTPDEVRVVIIGQDPYHQP
GQAHGLAFSVRPGTPTPPSLRNILAAVRNCCPDAELAAHGCLEKWARGGVLLLNTTLT
VRRGEPASHAKWGWDRFVASAVRRLAASRPGLVFMLWGAHAQNAIRPDPRVHRVLTYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="virion glycoprotein L"
/protein_id="AAP41419.1"
/protein_id="AAP41419.1"
/db_xref="G1:300844243"
/translation="MFLRSVSAAPSVVSPAASPSPSPPVEYVIRSVAARTVGDILKFA
/translation="MFLRSVSAALDGIFLRYHCCELDTVVWDCKAQRAYWVNPF1FAA
GFLEDLGHALFPANALETTTRFALKEVFKLALASRSDAASSTPVPFGCVVDAEYSRTD
GPDGRTPGIWNEPRIRRPFSAPNDEASPQPQSLAPAPTPTPPGRTHEPARKPRGNATR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HOTQAQARAQARTQARAQAVLAQALAQALTQARBGAQAPREGAQVPEGAQVPEGAQV
PEGAQVEPGAQAQPRAQAQPRAQVPEGAQARROARARAA PALPAQPD PLCAVVAAAAA
ARKRPASASEAAPATRGPKRPSLPPPEGGPAPRRAPARAPALAAAPPPERPLAPPAD
PPPDQAAPPPBAAPPPETRDRSSLGPRPAEGGPRKCVRKTHYDAEGAPAAPGPT
RYLPISGVSSVVAMAPYLNKTVTGDCLPVLDMETGDIGAYVVLVGRACNMARALAEAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3125. .4636
/gene="RL2"
                                                                                                                                                                                                                                                                    /gene="UL4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9814. .10575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9022.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2461. .3003
/gene="RL2"
/number=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2194. .2241
/gene="RL2"
                                                                                                                                                                                                                                            complement (11509.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HPSPLSKVPFSSCRHFCLANQYLRERSLAPVDWST"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TARPRA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9072. .9746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PWTPGPADPPPTRGSGGP"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PGWSRRTRLPEAAPGRVSPPEYPGDPAHGLWMTPVGGMLFDQGALLGGRSFHSLDSRH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="unique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                number=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .116838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             start codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        start codon
                                                                                                                                                                                                                                                                                                   .12120)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .9074, aa:Met)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTG!
```

PGTPSPPAVSPASAEAGAAADLLVEVMKEIQLSPTLGFGQHEP"

gene

complement (12172.

.14820)

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MARVGGDASVSSPDEQPREDSVQFRDEAFILNETSWHGIQPIIER
/translation="MARVGGDASVSSPDEQPREDSVQFRDEAFILNETSWHGIQPIIER
/relaehrlebarvprlowfrdvaaletpaglplrefpavylitgnagsgkstcvqt
LNEVLDCVVTGATRIAAQNMYVKLSGAFLSFPINTIFEGFRGSHVQAQVGQHPYTL
ASNPASVEDLQRRDLTYYWBUJADITRAVAAGGGAEDGRNEFPALATLESTWGLGEG
ALTRLAAFTHGALPAFTRSNIVVIDEAGLLGRHLLTAVVYCWMMTNALYHTPQYAAGL
RPVLVCVGSPTQTASLESTFEHQKLRCSIRQSENVLTYLICNRTLREXARLPRSWAIF
INNKRCVEHEFGNLMKALEYGLPLTEEMMQFVDRFVVPESFITNPANLPGWTRLFSSH
KEVSAYMARLHAHLKVAREGEFVVFSLFVLTFVSAKAFDEXTELTHQPALTVEKWIAA
NAGRITNYSQSQDQDAGRARLEVHSKQQLVVARNDVTVLNSQIAVTTRLRKLVFGFS
GTFRSFEAVLRDDSFVKTQGEMLVFFAYQFLSRLIFGSHIFYNFLLREDDAARRAR
AYENWGALTRELLSLGATGAGPATFGDQAASGGGESASAAFGARRAFDFYTLGARATD
AEFPEDDLDVVFAGLNEQELDLFYCHYTVEQPETTAAVHAQFGLLKRAFLGRYHILRE
LFGBAFEGAFFGTYUDNVTFRGCEVMLGSMRGGLMSVALQCDSSYTLTGFTYARVXAFA
AYENGALTRELLSLGATGAGPATFGDQAASGGGESASAAFGARRAFDFFTLGRAATD
AEFPEDDLDVFAGLNEQELDLFYCHYTVEQPETTAAVHAQFGLLKRAFLGRYHILRE
LFGBAFEGAFFGTYUDNVTFRGCEVMLGSMRGGLMSVALQCDSSYTLTGFTYARVXAFA
AYENGALTRELLSLGATGAGPATFGDQAASGGGESASAAFGARRAFDFTTLGRAATD
AEFPEDDLDVFAGLNEQELDLFYCHYTVEQPETTAAVHAQFGLLKRAFLGRYHILRE
LFGBAFEGAFFGTYDNVTFRGCEVMLGSMRGGLMSVALQCDSSYTLTGFTYARVXAFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="capsid protein"
/product="capsid protein"
/product="g1:30844249"
/protein_id="AAPA1425_1"
/db_xref="g1:30844249"
/tanslation="MATSTPAESETAAAALRRAVAGDRDLVGVAEAISHQALLRMACE
/translation="MATSTPAESETAAAALRRAVAGDRDLLIASDAYFARCRDQSAHRGF
/RQATRHTVRFTATGVVRVNVTPDHRLHFVLDGCPDDALIASDAYFARCRDQSAHRGF
AFAVULAREDHVHSLCVPPLVLPHRLSVFWPEHLEDFELACLLMYLENCRAHATASA
FVKISAMIAALGRRTSPFDRVRCLLLRSCQWMLNTLMFMVHVEPFDDQVVLPHWCMAS
FVKISAMIAALGRRTSPFDRVRCLLLRSCQWMLNTLMFMVHVEPFDDQVVLPHWCMAS
FVLANNPPPILTALFERAGPSRVFRLFVQPRASLECVAYNPQGVLAAGWASEDFRAGIV
SWWSSDAPKTQTSALFYRLV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14819. .16870
/gene="UL6"
14819. .16870
/gene="UL6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16821. .17711
/gene="UL7"
16821. .17711
/product "component of helicase-primase complex"
/protein_id="AAP41426".1"
/db xref="q1:30844250"
/translation="McDAGLUWAEESICAITLYTAWLPPRTRDRLHVLLYLFCRDARG
/translation="McDAGLUWAEESICAITLYTAWLPPRTRDRLHVLLYLFCRDARG
/translation="McDAGLWAEESICAITLYTAWLPPRTRDRLHVLLYLFCRDARG
/translation="McDAGLAWAEESICAITLYTAWLPPRTRDRLHYLLYLFCRDARG
/translation="McDAGLAWAEESICAITLYTAWLPPRTRDRLHYLT"
/translation="McDAGLAWAEESICAITLYTHITTT"
/translation="McDAGLAWAEES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (17886.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PAPEPADPDRRVRERPRGRSRSPVDAGRPGGRGPEDAWGGRGDHGHLDPRRGGDGGRR
P"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ERHERDDVISEHILSALRDPDVLIVY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EEVRRRHAAGGLAELLEES PLEYVVLRDOHGFMS VVNTNISEFVES VESRELAMATNA
DYGISSMLAMTITRSOGLSLDKVAICFTPGNLRLNSAYVAMSRTTSSEFLRMNLNPLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein_id="AAP$1423.1"
/db_xref="0I:30844247"
/translation="warrer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="UL5"
complement(12172.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (17886. .20171)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="UL7"
/note="role in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="UL8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="role in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon start=
                                                                                                                                                                                                                                                                                                                                                                                  start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA cleavage/packaging"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA cleavage/packaging"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .14820)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .20171)
```

```
PVRREGAVADVFEVREAVLRPRGHAQAVTARVLVPRGYEYFAVGAEGFSAPALIAMFR
QWYLTVHAGPGALPPI FAFLGPEËSPRGAVDHESVLGFPGWATLKVSGGAAAAPPAA
LAAHAELAGAWPAAGARALGAAAAAAAAAERLPPALKRYGGAAAAAPVIG
PVCLARFER FOHLOPRLLAALYELGLRGDPRAADPRDPLGRGARRWRDLAGGEGAAEQA
PWPREVLALATDEVRREY PAVARTLDGI VSAVGVGLEKAAGAVDMAVCGDGGGRVWGV
LNVDPRDAAGAAAAAAAERARAALAASASSBALAGWGLRLDAPPLVLEGTYTHAVLW
```

```
δ
                                                                                                                                   δ
                                                                                                                                                                                            밁
                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
밁
                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 391
154733
                                                                                                                                                                                               154613
                                                                                                                                                                                                                                                                                                 154553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    154313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    154253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        154193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       154073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         153953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         153893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   486
                                                                                                                                                                                                                                                                                                                                                                                                                                                 909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      391;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                              GGCCGCGGGCGGCGACACGCTGCTCGCCGACGACGACGACGCCGCCGCCGTGGAGGT
                                                                                                                                                                                                                                                                                                                                             cceccec
                                                 CGACGGC
                                                                                               CGGCCCGGGCCCCCGAGGACTGGTAGACGCGGGGGGCGCCCCCTCCCCCCGCGCCCCC 154732
                                                                                                                                              CGCCCCCGGGCGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCCCGGGAACCCT 845
                                                                                                                                                                                            GGCCGCCGCGAGCCCCGCCCGCGCGGGCCTCCCCGGACTGGGACTGGGACTGGGAGCG 154672
                                                                                                                                                                                                                              GACGGCACCGCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGCCCGCGCTTCTGCGCGCGCGCCCTGCTCGAGCCGGACCCCGACGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ecnecretarica de la facta de la constanta del constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGGCCGGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATGTTCGCCCCCCCCCCCCCCATGACCCGCCCACCCCTGGCCCCCTGGTCACCAGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGCATGGCCGCGGAGCTCGCGGCCCCACGCCCCGGCGTCCAGCACGTGGGCCTCAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCGTGACCCGGCTCATGCGGCCGGGCGCGCCTCTCCGCCGACACCCCTGTCCGGTCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGGACGCGGACCTCCTGCTCCGCCGTACACGACGACGTGGCCCTCAAGGCCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCGCGGGCCCGAACTCGCGGCCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGCTGCGGGAGGCGGCAGCCACGCTCGTCGTCGACCTCGTACCGCCGCCGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCTTCCCCCGCAGCGTCGTCGGCCGGCAGCGGGCGGGGCGGGGCGGCATGTTCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                 852
154739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 117.4; I Pred. No. 0.084
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             117.4; DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        456;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156789;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          125
                                                                                                                                                                                                                                                                                                                                               725
                                                                                                                                                                                                                                                                                                                                                                                                                                                 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         153952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65
                                                                                                                                                                                                                                                                                              154612
                                                                                                                                                                                                                                                                                                                                                                                                154552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                154492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    154312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      154252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       154132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       154072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     154192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

Job time : 4458.25 secs

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                          ი
                                                                         იი
                                                                                                                                                                                                                                                                                                                                                                0.0
        იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         on:
           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
        969
915.4
913.8
913.8
270.8
270.8
124.8
114.8
1115.6
1111.8
1111.8
1111.8
1111.8
1111.8
1111.8
1111.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N_Geneseq_16Dec04:*
1:    geneseqn1980s:*
2:    geneseqn1990s:*
3:    geneseqn2000s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77.
111.
112.
113.
     1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          October 4, 2005, 16:46:09; Search time 585.401 Seconds (without alignments) 9798.799 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4390206 seqs, 2959870667 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IDENTITY_NUC Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-5
969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       atgagcggcttcccccgcag.....aaggcgagaaggaccgatga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         geneseqn2000s:*
geneseqn2001as:*
geneseqn2001bs:*
geneseqn2002as:*
geneseqn2002bs:*
geneseqn2003as:*
geneseqn2003as:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             geneseqn2003cs:*
geneseqn2003ds:*
geneseqn2004as:*
geneseqn2004bs:*
     969

969

969

969

969

12391

12391

114955

114955

114955

65140

65140

65140

975

975

13193

14955

13193

14955

14955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.6 (c) 1993 - 2005 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB
                                                                                                                 AAF86411
AAL50129
ABZ69799
AAR59269
AAR759269
AAR759269
AAR759269
AAR759269
AAR753491
AAD17184
AAL6117184
AAL6117184
AAL6117184
AAL6117184
AAL61172
AAL61172
AAL61172
AAL61172
AAL61172
AAL61172
AAL61172
AAL61172
AAL61172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8780412
                                                                                                                                                                                                                                                                                                                                                                                                          Aaf86411 4-amino-4
Aal50182 S venezue
Abz69799 Plasmid p
Abz69798 Plasmid p
Aat59269 Streptomy
     Abz69799
Abz69799
Abz69798
Abz69798
Abz599269
Aat59269
Aat53491
Aad17186
Aax53491
Aax53491
Aax53491
Aax617184
Aa161171
Aa161171
Aa161177
Aa161177
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa161170
Aa16170
Aa16170
Aa16170
Aa16170
Aa161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
Streptomy
Human ade
Streptomy
Human ade
Streptomy
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Actinosyn
Streptomy
4-amino-4
S venezue
Actinosyn
Plasmid p
Plasmid p
```

XXXXX

agrochemicals.

Claim 15; Page 67-70; 83pp; Japanese

Transformant producing secondary metabolite modified with functional group e.g. benzene with nitrogen-containing substituent at para-position, PF1022, with ease at low cost, for application in pharmaceuticals and

2 2 2 2	Z T T	Y P ?	SE	Ş F	\$ B \$	Y PN	X F F F F F	8 X	주 포 된	X E	433	383	RESULT AAF864 ID A			ი				ი				٠					O	ი	
P-PI	Yanai Murak	(MEIJ	29-	29-	05-	WO2	Key CDS	Str	Met.	4-a	22-	AAF	7LT 1 36411 AAF		4 4 5 4	4 ω	42	40	39	ب 7 م	36	ω π 4	33	32	30	28	27	2 2	23 24	21	;
WPI; 2001-290517/30 P-PSDB; AAB82073.	ami i	IJ) MEIJI	29-SEP-1999	29-SEP-2000;	05-APR-2001	WO200123542-A1		Streptomyces	Metabolite; benzene; cho: 4-amino-4-deoxyprephenic	amino-4-deoxyprephenic	2-JUN-2001	AAF86411;	RESULT 1 RAF86411 ID AAF86411 standard;		100.2	100.4	100.4	101.4	101.4	102.6	102.6	102.6	104	104	104	104	104	104	104.4	105.2) -
90517,82073	Okakura ';	JI SEIKA	٠.		•	-A1.			benze eoxypi	еохурі	(first		andaro		10.3		10.4	•		•				•					10.8	10.9	
30.	۲		99JP-0027	2000WO-JP006783			Location/Qualifie 1969 /*tag= a /product= "4-amin	venezuelae.	ene; cho cephenic	rephenic	st entry)		DNA;		88421	110000	2700	61944	15738	154746	154746	3957	38506	38506	38506	37948	36778	13842	44377 13842	3354 44377	,
	Yasuda	KAISHA LTD.	00276314.	6783			/Qual a "4-		rism	acid	૮		969					- 10	10	ש פ	9		10		w u	ມເມ				NO	
	S, Watanabe M, Miyamoto	TD.	•	•			lifiers -amino-4-deóxyprephenic		<pre>chorismic acid; p-aminophenylpyruvic nic acid dehydrogenase; enzyme; papC;</pre>	d dehydrogenase coding			BP.	ALIGNMENTS	AAA584/1 AAL40781	AAI99682_39	AAD17193	ADI23920	ADI23932	AAD25519 ABC78696	AAD25519	AAA09686	ABS56090	ADA09418	AAZ56001	AAZ87285	ADL91933		AAT78508 AAZ87297	AAL61181 AAT80414	•
	noto K, Midoh N;						: acid dehydrogenase"		pyruvic acid; e; papC; ds.	sequence.					Aal40781 88421nt g	Continuation (40 o	Aad17193 ERD48 ins	Adi23920 Streptomy	Adi23932 Streptomy	Aad25519 Human her	Aad25519 Human her	Aaa09686 HSV-2 imm	Abs56090 S. venezu	Ada09418 Cosmid pK	Aaz56001 Recombina	Aaz87285 S. venezu	Ad191933 Streptomy	13.	Aat78508 Platenoli Aaz87297 S. venezu	Aal61181 Actinosyn Aat80414 Platenoli	

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present invention relates to a transformant having been modified so as to produce a secondary metabolite. The secondary metabolite has a benzene ring skeleton free from substitution at the para-position by a nitrogen-containing functional group, thereby enabling the production of a secondary metabolite with a benzene ring skeleton substituted at the para-position by a nitrogen-containing group. The transformant organism of the present invention has been produced by transferring a gene participating in the biosynthesis pathway from chorismic acid into participating in the biosynthesis pathway from chorismic acid into participates in the greene is the coding sequence for 4-amino-4-deoxyprephenic acid dehydrogenase (pape), from Streptomyces venezuelae. papC participates in the biosynthesis pathway from chorismic acid into p-aminophenylpyruvic acid, and so the papC gene can be used to produce the transformant of the present invention. The transformant can be used to produce the transformant of the present invention in pharmaceuticals, veterinary drugs and agrochemicals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 969; Conserv
721
                                       721
                                                                                   661
                                                                                                                          661
                                                                                                                                                                         601
                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \vdash
                    GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                  GCGGCGACGGCACCGCCCCACCAGGTGCTCCGCCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                        GCCGTGCTCCTCCCTTCGGCCTCGCCCCCCCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                    GTACGGCTCACGGCGGAGGAGCACGACGGACGGCCACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                   GTACGGCTCACGGGGAGGAGCACGACGGACGGACGGCGGCCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGCGCCGTGACCCGGCTCATGCGGCCGGCCGGCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGTCGTCGTCGTACCGCCGCCG
                                                                                                                                                                         GCGGCGACGGCACCGCCCACCAGGTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                               GCCGTGCTCCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGGACGGGCGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGGACGGGCCGGCGTCACGGCCTGCTGCGTCGAGGGCCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AACCCGATGTTCGCCCCCCCCCCGCCGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AACCCGATGTTCGCCCCCCCCCCCCGCCATGACCGGCCGACCCGTGGCCGCCGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGACGGGCATGGCCGCGGAGCTCGCGGCCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGCGCCCGTGACCCGGCTCATGCGGCCGGCCGCGCTGCTCGCCGACACCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCTCCGGGACGCGGACCTCGTCCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCTCCGGGACGCGGACCTCGTCCTCGCTCGCACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        969 BP; 106 A;
                                                                                 GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        397 C; 358 G; 108 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 969; DB 4;
Pred. No. 2.8e-113;
Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0 U;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 969;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                  780
                                                                                                                                                                      660
                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60
                                                                                 720
                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
```

Ş

밁 Ş 밁 Ş 밁 밁 Ś

Š

Ś

밁

Ś

Ś

멍

á 밁 á

뭉

Ś 밁 Ś 밁 Ś 맑

Query Match

100.0%;

Score

969;

DB

œ

Length 969;

```
ARBSULT 2
ARALSOLT 2
ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT AND ARALSOLT A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                    The present invention relates to transformants capable of producing PF1022 substance derivatives. These were obtained by transferring a genparticipating in the biosynthesis pathway from chorismic acid to paminophenylpyruvic acid (biosynthesis gene) into a phenylalanine-requiring host derived from an organism producing the PF1022 substance. The transformants are producing PF1022 substance derivatives by fermentation, for use as pharmaceuticals or veterinary drugs. The present sequence is a substance PF1022 coding sequence from Streptomyces
  Sequence
                                                                                                                                                                                                                                                                                                                                                        Novel biosynthesis gene-transferred transformants for producing PF1022 substance derivatives by fermentation, as pharmaceuticals or veterinary drugs with anthelmintic activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S venezuelae
                                                                                                                                                                                                                                                                                                         Claim 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptomyces venezuelae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Substance PF1022; biosynthesis; transgenic; chorismic acid; anthelmintic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAL50182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAL50182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yanai K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22-MAR-2001; 2001JP-00082227.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22-MAR-2002; 2002WO-JP002782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200277244-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             veterinary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    phenylalanine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-JAN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (MEIJ ) MEIJI SEIKA KAISHA LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                               2003-018934/01.
DB; AAO19565.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
  969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGACGCCCCGGGCGCCGACGCCCCGGCCATCCCGGGGATGCGACGGCGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGACGCCCCCGGGCGACGCCCCCCGGCCATCCCCGGGGGATGCGACGGCGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGAAGGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGAAGGCGAAGGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AACCTCGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGGACCGGAGCTCGCGGCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Page 87-90; 116pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sumida N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       drug;
  BP; 106 A; 397 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PF1022 substance gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    p-aminophenylpyruvic acid; pharmaceutical;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Watanabe M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "PF1022 substance"
358 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Moriya
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              #3
  108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        H
Ή;
  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Murakami
  U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        H
                                                                                                                                                                                                                                                                                                                                                                                  veterinary
                                                                                                   present
                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               900
```

```
ફ
                                                                                                                                               ર્
                                                                                                                                                                         밁
                                                                                                                                                                                              á
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
밁
                 8
                                         밁
                                                          र्
                                                                                   밁
                                                                                                       Ś
                                                                                                                               ₽
                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                       ई
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                   661
                                                                                                                                                                                                                                         661
961
                                         901
                                                            901
                                                                                   841
                                                                                                         841
                                                                                                                               781
                                                                                                                                                  781
                                                                                                                                                                          721
                                                                                                                                                                                              721
                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                          GCGGCGACGGCACCGCCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCG 120
                                                     AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGG
                                                                                                                                          GCCGACGCCCCGGGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCCGGG
                                                                                                                                                                                    GCGGCGACGGCACCGCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                       GCCGTGCTCCTCCCTTCGGCCTCGCCCTCGCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                              AGGGACGGGCCGGCCTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACCCGATGTTCGCCCCCGCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGTCGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGCGCCCGTGACCCCGGCTCATGCGGCCGGGCCGCCGCCTGCTCGCCGACACCCCTGTCCGTC 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGACGGCCGGACGCCTGCCTGGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCCGCGGCC
GACCGATGA
                   GACCGATGA 969
                                         CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGAGGAGGAGAAG
                                                                                                                             GCCGACGCCCCGGGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCCCGGG
                                                                                                                                                                                                                   GCCGTGCTCCTCCTCGGGCTCGCCCTCGCCCCGCGTCGACGTCCGGCCCTG
                                                                                                                                                                                                                                                                                                                                                     GTACGGCTCACGGCGGAGGAGCACGACGGACGGCCACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                  AGGGACGGGCGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                         AACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGACGGGCATGGCCGGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGGCGCCCGTGACCCGGCTCATGCGGCCGGGCGCGCTGCTCGCCGACACCCTGTCCGTC 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGGGCTGCTGCGGAGGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. 2.8e-113; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                            960
                                                                                                        900
                                                                                                                                                  840
                                                                                                                                                                                                                                                                                                                                                                                                                                                              420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                         960
                                                                                  900
                                                                                                                             840
                                                                                                                                                                        780
                                                                                                                                                                                              780
                                                                                                                                                                                                                  720
                                                                                                                                                                                                                                        720
                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                  660
                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

RESULT 3

GCCCTCCGGGACGCGGACCTCGTCCTGCCGCGTACACGAGGACGTGGCCCTCAAGGCC

```
ABZ69799
XX
AC ABZ6
XX
AC ABZ6
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
XX
OB-A
밁
                                                       Ś
                                                                                                                     뎡
                                                                                                                                                                   Ş
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CC The invention relates to a novel composition comprising a translation comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl CC tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O crand the O-tRNA recognises at least one selector codon. A composition of CC and the O-tRNA recognises at least one selector codon. A composition of CC the invention is useful for producing at least one protein comprising at CC clast one unnatural amino acid. The protein is the Aspl2TAG mutant of CC chloramphenicol acetyltransferase (CAT); the Tyr163TAG mutant of mouse CC dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse CC dihydrofolate reductase comprising CHOCH His6tag. The unnatural amino acid is biosynthesised by the cell. The present sequence CC represents a plasmid containing the individual genes papABC that encode CC the enzymes used to carry out the conversion of chorismate to the CC unnatural amino acid p-aminophenylalanine (pAF)
                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local 9
                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Composition useful for producing protein comprising unnatural amino acid, has translation system comprising orthogonal tRNA and orthogonal aminoacyl tRNA synthetase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS; orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase; ds; biosynthesis; p-aminophenylalanine; pAF; chorismate.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABZ69799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 3305 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 4; Page 127-128; 188pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2003-120430/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-APR-2001; 2001US-0285030P
06-FEB-2002; 2002US-0355514P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABZ69799 standard; DNA; 3305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Meggers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200285923-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Plasmid papABC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (SCRI)
                                                                                                                                                                                                                                             2007
                                                                                                                                                                                  13
                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SCRIPPS RES INST
                                        GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                        GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                            GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                             ATGAGCGGCTTCCCCCGGAGCGTCGTCGTCGGCGGCAGCGGAGCGGTGGGCGCATGTTC
                                                                                                                                                                                                                                                                                                 ATGAGCGGCTTCCCCCGCAGCGTCGTCGTCGGCGGCAGCGGCAGCGGCGGCATGTTC
      Wang L, A
                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              445 A; 1327 C; 1121 G; 412 T; 0
                                                                                                                                                                                                                                                                                                                                                                                    96.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Anderson JC,
, Pastrnak M,
                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                    Score 915.4; DB 8;
Pred. No. 1.1e-106;
                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chin, JWK, L. Santoro SW,
                                                                                                                                                                                                                                                                                                                                                               16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DR,
                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                   Length 3305;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Magliery
                                                                                                                                                                                                                                                                                                                                                            18;
                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         걸
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    plasmid;
                                                                                                                                                                               120
      2186
                                                                                                                     2126
                                                                                                                                                                                                                                          2066
                                                                                                                                                                                                                                                                                                    60
                                                             180
```

Magliery

검

acid,

```
Ś
                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                      DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS; orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase; ds;
                                                                                                          Plasmid plasc-papabc.
                                                                                                                                                                                              ABZ69798
                                         biosynthesis; p-aminophenylalanine; pAF
                                                                                                                                        08-APR-2003
                                                                                                                                                                                                                                                                 2967
                                                                                                                                                                                                                                                                                                                        2907
                                                                                                                                                                                                                                                                                                                                                                           2847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2187
                                                                                                                                                                                                                                                                                                                                                                                                                                 2787
                                                                                                                                                                                                                                                                                                                                                883
                                                                                                                                                                                                                                                                                                                                                                                                                                                            769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGCGACGGCACCGCCCCCACCAGGTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGCGCCCGTGACCCGGCTCATGCGGCCGGGCGGCGCTGCTCGCCGACACCCTGTCCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard;
                                                                                                                                                                                                                                                                                           GACGACGAAGGCGAGAAGGACCGATGA 969
                                                                                                                                                                                                                                                                                                                                       CCGGAGCTCGCGGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACC
                                                                                                                                                                                                                                                                                                                                                                           GGATGCGACGGCGGGAACCTCGACGGCGTCTTCGAGGAACTCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGAGGACCCGGACGACGACCCCGGACGACAACCCCGGCATCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGTGCTCCTCCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTACGGCTCACGGCGGAGGAGCACGACCGGACGGCGACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTACGGCTCACGGCGGAGGAGCACCACCGACGGCCGGCGGCCACCCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGGACGGCCGGCGCTCCTGCTGCTCGAGGGCCGCGGCGGCAGGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACGACGAAGGCGAGAAGGACCGATGA 2993
                                                                                                                                                                                                                                                                                                                                                                                                   GGATGCGACGGCGCGGGAACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----GACCCGGACCGTGCCGACGCCCCCGGGCGCGACGCCCCCCGGCCATCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGGCGCTCGCCGAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGCGACGGCACCGCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGTGATCCTCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGGACGGGCCGGCCGTCACGGCCCTGCTGCGGCTCGAGGGCCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACCCGATGTTCGCCCCCCCCCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGACGGGCATGGCCGCGGAGCTCGCGGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGCGCCCGTGACCCGGCTCATGCGACCGGGCGCGCCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                                             DNA;
                                                                                                                                                                                              12391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGCGCTCCTTCGCCGCGCTGATCGGCGACGACCCGGACCGC
                                                                                                                                                                                              ВP
                                                       plasmid;
                                                                                                                                                                                                                                                                                                                                                                           2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2246
                                                                                                                                                                                                                                                                                                                        2966
                                                                                                                                                                                                                                                                                                                                                                                                      882
                                                                                                                                                                                                                                                                                                                                                                                                                                2846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          660
                                                             5
                                                                                              밁
                                                                                                                    Ş
                                                                                                                                                    밁
                                                                                                                                                                            Ś
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-tRNA with at least one unnatural amino acid in the translation system and the O-tRNA recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the Aspl?TAG mutant of chloramphenical acetyltransferase (CAT), the Tyr163TAG mutant of mouse dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse acid is provided exogenously. The translation system is a cell and the unnatural amino acid is biosynthesised by the cell. The presents sequence represents a plasmid for use in the biosynthesis of p-aminophenylalanine (pAF) in vivo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Composition useful for producing protein comprising unnatural amino has translation system comprising orthogonal tRNA and orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-APR-2001;
06-FEB-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 12391 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example 4; Page 124-127; 188pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aminoacyl tRNA synthetase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200285923-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (SCRI)
                                                                                                                                                    2601
                                                                                                                                                                                                                                                                                                                                                                           2361
                                                                                                                                                                                                           2541
                                                                                                                                                                                                                                                                2481
                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2003-120430/11.
               421
                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                952;
                                                                                                                                                                                                                                                                                                                                                                                                E,
                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SCRIPPS
AGGGACGGGCCGGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCC
                                                        AACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGTCGTCACC
                                                                                                            CGGACGGGCATGGCCGCGGAGCTCGCGGCCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                     GTGGCGCCCGTGACCCGGCTCATGCGACCGGGCGCGCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                   GTGGCGCCCGTGACCCGGCTCATGCGGCCGGGCGCGCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                                                           GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                        GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                 GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                      GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                       GCCGGGCTGCTGCGGGAGGCGGGCAGGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                           ATGAGTGGCTTCCCCCGGAGCGTCGTCGTCGGCGGCAGCGGAGCGGTGGGCGCATGTTC
                                          Wang I
Mehl
                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2001US-0285030P
2002US-0355514P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g L,
l RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2830 A; 3588
                                                                                                                                                                                                                                                                                                                                                                                                                                           94.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Anderson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                nderson JC,
Pastrnak M,
                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 913.8;
Pred. No. 1.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ü
                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chin JWK,
Santoro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                              DB 8;
.2e-106;
les 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2627 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ws.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮸
                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 12391;
```

18;

Gaps

2420

60

2480

120

180

2600

240

300

2540

480

```
ARESULT 5
AAT59269
ID 3027
AC AAT5
XX AAT5
XX AAT5
XX AAT5
XX AAT5
XX AAT5
XX Stre
XX Stre
XX DMPA
XX DMPA
XX DMPA
XX PAP
PT maty
PT maty
PT maty
PT W096
XX W096
XX 08-:
XX ORH
RAC
PA (RHC
XX Blan
PI Blan
PI Blan
                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                   밁
          Blanc V,
Barriere
                                                                                                                                                                                                  Streptogramin B; antibiotic; biosynthesis; pristinamycin; virginiamycin; DMPAPA precursor; 4-dimethylamino-L-phenylalanine; papA; papM; papB; papC; isomerisation; aromatisation; N-methyltransferase; ds.
                                                        08-JUL-1994;
                                                                           04-JUL-1995;
                                                                                                                 WO9601901-A1
                                                                                                                                                     mat_peptide
                                                                                                                                                                                Streptomyces pristinaespiralis
                                                                                                                                                                                                                                          Streptomyces
                                                                                                                                                                                                                                                              02-APR-1997
                                                                                                                                                                                                                                                                                                   AAT59269 standard;
                                      (RHON ) RHONE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2781
                                                                                                                                                                                                                                                                                                                                                  3321
                                                                                                                                                                                                                                                                                                                                                                                       3261
                                                                                                                                                                                                                                                                                                                                                                                                                           3201
                                                                                                                                                                                                                                                                                                                                                                                                         883
                                                                                                                                                                                                                                                                                                                                                                                                                                               823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     769
          'n
                                                                                                                                                                                                                                                                                                                                                                                                 CCGGAGCTCGCCGGCCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCCTCCACCGCACC
                                                                                                                                                                                                                                                                                                                                                                   GACGACGAAGGCGAGAAGGACCGATGA
                                                                                                                                                                                                                                                                                                                                                                                                                            GGATGCGACGGCGCCGGGAACCTCGACGGCGTCTTCGAGGAACTCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                        GGATGCGACGGCGCCGGGAACCTCGACGGCGTCTTCGGGGAACTCCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGAGGACCCGGACCGCCGACGACCGACCGACCGACCAACCCCGGCCATCCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGAC---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGTGATCCTCCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTACGGCTCACGGCGGAGGAGCACGACCGGACGACGCGGCGACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTACGGCTCACGGCGGAGGAGCACGACCGGACGGCCGCCACCCCAGGCCCTGACGCAC 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGCGACGGCACCGCCCACCAGGTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGGACGGGCCGGCCTCACGGCCCTGCTGCGGCTCGAGGGCGGCGGCGGCAGGCCC 284
                    Thibaut D,
                                                                                                                                                                                                                                         pristinaespiralis papC gene.
         Debussche L,
                                                                                                                                                                                                                                                            (first entry)
                                      POULENC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GACCCGGACCGTGCCGACGCCCCCGGGCGCGCGCGACGCCCCCGGCCATCCCGGG
                                                         94FR-00008478
                                                                            95WO-FR000889
                                                                                                                                                              Location/Qualifiers
                                                                                                                                  product=
                                                                                                                                                                                                                                                                                                  CDNA;
         Bamas-Jacques N,
ie L, Famechon A,
                                      RORER SA
                                                                                                                                                                                                                                                                                                   888
                                                                                                                                                                                                                                                                                                  ВP
                                                                                                                                                                                                                                                                                                                                                                    969
        Blanche F,
Paris J, I
          Dutruc-Rosset
                   Crouzet J;
          Ö
                                                                                                                                                                                                                                                                                                                                                                                                                            3260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3080
                                                                                                                                                                                                                                                                                                                                                                                       3320
                                                                                                                                                                                                                                                                                                                                                                                                         942
                                                                                                                                                                                                                                                                                                                                                                                                                                               882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2900
                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                     Ś
                                                        밁
                                                                      δ
                                                                                            g
                                                                                                              Ś
                                                                                                                                 맑
                                                                                                                                                   Ś
                                                                                                                                                                        밁
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                   멼
```

```
R WPI; 1996-097631/10.
R P-PSDB; AAW11582.
X
T New streptogramin B derivs. useful as antibiotics - produced by new mutants of Streptomyces having altered genes for streptogramin B biosynthesis.
```

Claim 18; Page 105-106; 146pp; French.

The papA and papM genes of S.pristinaespiralis are involved in the biosynthesis of 4-dimethylamino-L-phenylalanine (DMPAPA), a precursor for pristinamycin IA. The region between these two genes was sequenced and two open reading frames were identified. The first (papC) was on the C complementary strand and decodes to an amino acid sequence with homology to the region of E.coli TyrA which has been implicated in aromatisation reactions. The PapC gene product is likely to be involved in a similar caromatisation of 4-deoxy 4-amino prephenate to give 4-amino prephenate (papB) could be decoded to give a product with homology to the region of TyrA which has chorismate mutase activity. The PapB gene product is likely to catalyse the isomerisation of 4-deoxy 4-amino chorismate to 4-deoxy 4-aminoprephenate acid. Disruption of the papB and papC genes can be used to produce strains of S.pristinaespiralis which are unable to C c product the antibiotic pristinaespiralis which are unable to produce the antibiotic pristinaespiralis which are unable to c c new, modified forms of it

```
X

Q Sequence 888 BP; 73 A; 254 C; 428 G; 13 T; 0 U; 0 Other;

Query Match 27.9%; Score 270.8; DB 2; Length 888;

Best Local Similarity 58.8%; Pred. No. 7.4e-26;

Matches 486; Conservative 0; Mismatches 337; Indels 3; Gaps
```

```
259
                              247
                                                              199
                                                                                                                               139
                                                                                                                                                                                                                            67
                                                                                                                                                                                                                                                            19
                                                                                                                                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                            486;
                    CGGGACGCGGACCTCGTCCTCCTCGCCGTA¢ACGCGAGGACGTGGCCCTCAAGGCCGTGGCG
                                                                                                                               GGGGTGCGGGTGGTGGTGATGTGCGGCGGCCGGGGCCGGAGGCGGTCGCGGCGCTG 198
                                                                                                                                                                                                                                                                             TTCCCCCGCAGCGTCGTCGTCGGCGGCAGCGGGAGCGGGTGGGCGGCATGTT----CGCCGGG
GTGCTGGCGGGGTGATGCGGCCCGGTGCGGTGCTCGCGGACACCTTGTCGGTCAAGAGC
                                                               GCGGCGGCGGACGTGGTGCTGGCGGCGGTGCCGGAGCCGGTGGCGTGGGAGGCGGTGGAG
                                                                                                                                                          CTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCGGGACGG
                                                                                                                                                                                                                                                          CTGGTGCGTTCGGGGGTGGCGGTGACCTGGCCTGGACGTGGCCGGGGCCGGTGCGGCGGAC 138
                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                          7.4e-26;
hes 337;
                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                            ω
••
                                                                                                                                                                                                                                                                                                                         Gaps
                               306
                                                               258
                                                                                               246
                                                                                                                                                                                                                                                            78
```

607

618

498 546 558

666

307 319 367 379 379 427 427 487

GGGCCGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGCCGGCGGCGGCAGGCCCGTACGG

ATGTTCGCCCCCTCGCTGGGTCTTCAGGGGCGGCCGGTGGCGGCGGTGGTCACCGAC

crcacegogaegaecaceacegaceacegogecacecaegoceteacecaegocete

366

```
RESULT 6
ANT5928/c
ID ANT592
XX ANT592
XX Strept
XX Strept
XX Strept
XX DAPAPA
XX DAPAPA
XX DAPAPA
XX DAPC;
XX Strept
XX Strept
XX CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptogramin B; antibiotic; biosynthesis; pristinamycin; virginiamycin; DMPAPA precursor; 4-dimethylamino-L-phenylalanine; papA; papM; papB; papC; isomerisation; aromatisation; N-methyltransferase; ds.
                                                  Example 1; Page 102-104; 146pp; French.
                                                                                                                            New streptogramin B derivs. useful as antibiotics mutants of Streptomyces having altered genes for a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAT59268
                                                                                                                                                                                                                                                                                         Barriere
                                                                                                                                                                                                                                                                                                              Blanc V,
                                                                                                                                                                                                                                                                                                                                                                                                                   08-JUL-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-JUL-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25-JAN-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9601901-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAT59268 standard;
  papA
                                                                                                                                                                                                                                      1996-097631/10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 667
                                                                                                                                                                                                         AAW11582, AAW11583
                                                                                                                                                                                                                                                                                                                                                                   RHONE
     and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ecccceeececececccccceecarccceeecareceareceare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGGGCCGGCCTGGTGCGGCTGGGGCAGGCCGTCGAGAGGGGCGACGAGGAGACGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGGACCCGGACCGTGCCGAC 786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thibaut D,
  papM genes
                                                                                                                                                                                                                                                                                      Debussche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pristinaespiralis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pristinaespiralis papA and papM intergenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first
                                                                                                                                                                                                                                                                                                                                                                POULENC
                                                                                                                                                                                                                                                                                                                                                                                                                   94FR-00008478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95WO-FR000889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag= c
/product= "PapB"
2259. .2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note= "C-terminal coding region only,
open reading frame"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'product= "PapM"
/note= "N-terminal coding region only, i.e. a partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product= "PapC"
|873. .2262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        product= "PapA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                omplement (949. .1836)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entry
                                                                                                                                                                                                                                                                                                              Bamas-Jacques
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    reading frame"
                                                                                                                                                                                                                                                                                                                                                                RORER SA.
                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     עם
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
  of S.pristinaespiralis are involved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2888
                                                                                                                                                                                                                                                                                      Famechon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ΒP
                                                                                                                                                                                                                                                                                   ÞΖ
                                                                                                                                                                                                                                                                                 Blanche F, Crouzet J;
Paris J, Dutruc-Rosset
                                                                                                                            streptogramin H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                і.е.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         region
'n.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a partial
  the
                                                                                                                                                       new
                                                                                                                                                                                                                                                                                   ٠,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               798
                                       5
                                                                                               밁
                                                                                                                                               δ
                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             888888888888888888888888888
  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 2888 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity
  1098
                                                                                                    1158
                                                                                                                                                                                                                                                                                                              1278
                                                                                                                                                                                                                                                                                                                                                                                                                1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1758
                                                                                                                                                                                                         1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    367
                                                                                                                                                                                                                                                           607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           307
                                                  727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        486;
  CTGGGCCGGGCCTGGTGCGGCTGGGGCAGGCCGTCGAGAGGGGGCGACGAGGAGACGTTC
                                               circio de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la c
                                                                                                    CCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCCGCCGGGCG
                                                                                                                                                                                                         AGTGCCCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCCGGCGGGACG
```

```
pristinamycin IA. The region between these two genes was sequenced and two open reading frames were identified. The first (papC) was on the complementary strand and decodes to an amino acid sequence with homology to the region of E.coli TyrA which has been implicated in aromatisation reactions. The PapC gene product is likely to be involved in a similar aromatisation of 4-deoxy 4-amino prephenate to give 4-amino phenylpyruvate during DMPAPA synthesis. The second open reading frame (papB) could be decoded to give a product with homology to the region of TyrA which has chorismate mutase activity. The PapB gene product is likely to catalyse the isomerisation of 4-deoxy 4-amino chorismate to 4-deoxy 4-aminoprephenate. Disruption of the papB and papC genes can be used to produce strains of 5.pristinamycin I but which has be able to produce new, modified forms of it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        biosynthesis of 4-dimethylamino-L-phenylalanine (DMPAPA), a precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
```

390 A; 1319 C; 897 G; 282 T; 0 U; 0 Other;

cceenceccreccreeresecencercececececececes criecrieceeaaeeceecaececaecaecreercercerceaecriceraeceeceeceeeaacee TTCGGGCGTTGTGTGGTGGGCGGGGGGCCGGTGGGCCGCATGTTCAGCCACTGG Conservative 27.9%; 0 Score 270.8; DB 2 Pred. No. 5.6e-26; Mismatches DB 2; 337; Indels Length 2888; u .. Gaps 1699 1759 186 126 66

1698 GGGGTGCGGGTGGTGGCTGATGTGCGGCGGCCGGGGCCGGAGGCGGTCGCCGCCCTG GCATGGCCGCGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCCTCAACCCC ACGGCACCGCCGCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGGCAGC CTCCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTGGCGGCG ATGCCGGCGCGCGCACGACGACCTGACCGCCGCGCAGCAGGCCGCCACGCATGCCGCG GGGCCCGGTGTGCCGGCCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGCCCGGGTGGTGGAG ATGTTCGCCCCCCCCCCCCCATGACCGGCCGACCCGTGGCCGTGGTCACCAGGGAC CGGATCGCCGGGCGCTGCGTGAGGCGGCGGCGGCGGCTGCAGGCGGTGGGGCTGAACCCG GTGCTGGCGGGGGTGATGCGGCCCGGTGCGGTGCTCGCGGACACCTTGTCGGTCAAGAGC CCCGTGACCCGGCTCATGCGGCCGGGCGCGCGCTGCTCGCCGGACACCCTGTCCCGGACG GCGGCGGCGGACGTGGTGCTGGCGGCGGTGCCGGAGCCGGTGGCGTGGGAGGCGGTGGAG CGGGACGCGGACCTCGTCCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCG ATGTTCGCCCCCTCGCTGGGTCTTCAGGGGCCGCCGGTGGCGGCGGTGGTCACCGAC 1219 1519 1579 1639 666 606 1279 546 1339 486 426 1459 366 306 246

1039

786

1099

1159

```
AAX53491/c
ID AAX534
XX AAX534
XX AAX534
XX AAX534
XX DT 05-JUL
XX OS-JUL
XX ANTISE
KW Impair
KW Impair
KW Pulmon
KW Colonni
KW Colonni
KW Colonni
KW Colonni
KW PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMON
XX PULMO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                  The specification describes antisense oligonucleotides (AAX52869-X55271) directed against at least 2 mRNAs selected from target genes, coding and non-coding regions of RNAs corresponding to target genes, gene initiation codons, genemic flanking regions, intron-exon borders, the 5'-end, the 3'-end and the juxta-section between coding and non-coding regions and all segments of RNAs encoding proteins associated with one or more diseases, conditions or mixtures. The antisense oligonucleotides may be derived from sequences AAX55272-74. These multiple target oligonucleotides (specifically AAX55180-271) can be used for the antisense treatment of diseases and conditions. Typical diseases and conditions are those associated with impaired respiration and inflammation, including lung diseases, pulmonary vasoconstriction, inflammation, allergic rhinitis,
                                                                                                                                                           acute asthma, allergies, asthma, impeded respiration, respiratory distress syndrome, pain, cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), and cancers such as leukemias, lymphomas, carcinomas e.g. colon cancer, breast cancer, lung cancer, pancreatic cancer, breast cancer,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             respiratory distress syndrome; pain; cystic fibrosis; pulmonary hypertension; pulmonary vasoconstriction; emphysema; chronic obstructive pulmonary disease; leukemia; lymphoma; carcinoma; colon cancer; breast cancer; lung cancer; pancreatic cancer;
   Sequence 114955 BP;
                                                                                            colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastasized which may metastasize or have metastasized
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New antisense oligonucleotides used in treatment of,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-SEP-1997;
09-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          impaired respiration; inflammation; lung disease;
pulmonary vasoconstriction; inflammation; allergic rhinitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAX53491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-229400/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9913886-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hepatocellular carcinoma; kidney cancer; melanoma; hepatic metastasis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          acute asthma; allergy; asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Antisense oligonucleotide; multiple target; antisense treatment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human adenosine Al
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (UYEC-) UNIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCCGGGCGCGCGACGCCCCCCGGCCATCCCGGGGGATGCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EAST CAROLINA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                   including
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97US-0059160P
98US-00093972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98WO-US019419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 receptor antisense oligonucleotide
6071 A; 29417 C; 36712 G; 21328 T; 0 U; 21427 Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120pp; English.
                                                                      breast and prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               114955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       impeded respiration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pulmonary
                                                                                                                                          96
```

Query Match

12.9%;

Score 124.8;

DB 2;

Length 114955

RESULT 8

```
δ
                                                                                                                                                    밁
                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
밁
                                                                            밁
                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
  104269 NNNSCG 104264
                                                                                                                                                                                                                                104449
                                                                                                                                                                                                                                                                                                                                                                                     104569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             104686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      104806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          104926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    104986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 105046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             105106 NNHNNNSCGGCCCGGCCGCCGCCCCVGGCNNHNNNSCGGCCCGGCCGGCGCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     105166 NNNSCEGECCEGECEGECEGECECEVGNNHNNNSCEGECCCEGECEGECEGECECEVEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 105226 HINNINSCEGECCEGECEGECEGECECCNNHINNINSCEGECEGECEGECEGECECCVNNH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                      GGACCG
                                                                            GGCGCGCCCVGGCCGGNNHNNNSGGCCCGGCCGGCGCGCGCCCVGGCCGNNH
                                                                                                              CCAGGACCACTGCCAGGAGCTGTTCCGCACGCTCCACCGCACGACGACGAAGGCGAGAA
                                                                                                                                                    CVGCGGNNHNNNSCCCGGCCGGCGGCGCCCCVGGCCVGCGGNNHNNNSGCCCGGCCGGC
                                                                                                                                                                                        GAACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGGGCGCGGCGGG
                                                                                                                                                                                                                                NNNSCGGCCGGCGCGCCCVGGCCVGCGNNHNNNSCCGGCCGGCGGCGCGCCCVGGC
                                                                                                                                                                                                                                                                    TGCCGACGCCCCGGGCGCGCCGACGCCCCCCGGCCATCCCGGGGGATGCGACGGCGCCGG
                                                                                                                                                                                                                                                                                                                                                 CCGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCCGGACCG
                                                                                                                                                                                                                                                                                                                                                                                       GCGGCGCCCVGGCCVGCGGNNHNNNSCCGGCGCGCGCCCVGGCCVGCGGNNHNNNSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HNNNSGGCGCGCCCVGGCCVG----CGGNNHNNNSCGGCGCGCCCVGGCCVGCGGNNHNNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCCVGCGGNNHNNNSCGCGCCCVGGCCVGCGGNNHNNNSGCGCGCCCVGGCCVGCGGNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGTACGGCTCACGGCGGAGGAGGACGACGGACGGCGGCCACCCAGGCCCTGACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGNNHNNNSGCCCVGGCCVGCGGNNHNNNSCGCCCVGGCCVGCGGNNHNNNSGCGCCCV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGGGACGGGCCGGCCGTCACGGCCCTGCTGCGGCTCGAGGGCGGCGGCGGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAACCCGATGTTCGCCCCCGCCGCCGCCATGACCGGCCGACCCGTGGCCGCCGTGGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGGACGGCATGGCCGCGGAGCTCGCGGCGCCCCGGCGTCCAGCACGTGGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGCGCCCVGGCCVGNNHNNNSCGGCCCGGCCGGCGCGCCCVGCCVGCNHNN 104927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGCGC-CCGTGACCCGGCTCATGCCGGCCGGGCGCGCTGCTCGCTGTCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCVGGCCNNHNNNSCGGCCCGGCCGGCGCGCCCVGGCCVNNHNNNSCGGCCCGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGAGCGGCTTCCCCCGCAGCGTCGTCGTCGGCGGCAGCGGCGGCGGCGGCGGCATGTTC
                                                                                                                                                                                                                                                                                                          CCGGCGCGCCCVGGCCVGCGGNNHNNNSGGCCGGCGCGCCCVGGCCVGCCGGNNH 104450
                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SGCGGCGCCCVGGCCVGCGGNNHNNNSGGCGGCGCCCCVGGCCCVGCGGNNHNNNSCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ecceccacecacecceccaccacerécrecrecrecrecrecrecrecres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCCGTGCTCCTCCTTCGGGCTCGCCCTCGGCCTCGGCGTCGACGTCCGGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CVGCGGNNHNNNSCVGGCCVGCGGNNHNNNSCCCVGGCCVGCGGNNHNNNSCCCVGGCCVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCGGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                      965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  33.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 4.3e-08;
L3; Mismatches 523;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                            104270
                                                                                                                                                                                          899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                104390
                                                                                                                                                                                                                                                                                                                                                   779
                                                                                                                                                                                                                                                                                                                                                                                       104510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           104630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      104747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          104867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 104987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         105107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 105167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                    104330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             105047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ν
```

gene

18

125401; 24;

Gaps

4;

85

28679

202

28739

145

262

322 28799

28856

```
Zotchev
Valla S,
  New nystatin polyketide synthas as antibiotics and antifungals.
                                  WPI; 2001-557614/62.
P-PSDB; AAE10143, AAE10144,
AAE10149, AAE10150.
                                                                                                                                                                                                                                                    08-FEB-2000; 2000GB-00002840.
10-APR-2000; 2000GB-00008786.
14-APR-2000; 2000GB-00009387.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAD17186 standard; DNA; 125401
                                                                                                                                                 (ZOTC/)
(SEKU/)
(FJAE/)
                                                                                                                                                                                 (UYNO-)
(SNTF)
(ALPH-)
(SINV-)
(DZIE/)
                                                                                                                                                                                                                                                                                                 08-FEB-2001; 2001WO-GB000509
                                                                                                                                                                                                                                                                                                                                              WO200159126-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Polyketide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAD17186
                                                                                                                                       BRAU/
                                                                                                              SINVENT AS.
DZIEGLEWSKA H.
ZOTCHEV S B.
SEKUROVA O N.
FJAERVIK E.
BRAUTASET T.
STROM A R.
VALLA S.
                                                                             SB, Sekurova O, Ellingsen TE,
                                                                                                                                                                                                        UNIV NORGES TEKNISK NATURVITENSKAPELIGE.
SINTEF STIFTELSEN IND TEK FORSK.
ALPHARMA AS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             synthase; PK;
antibiotic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         noursei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              noursei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product= "NysM protein"
/note= "CDS does not include
complement(59045. .60241)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers 6337. .34771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product= "NysL p
complement(58786.
                                                                                                                                                                                                                                                                                                                                                                                      'product = "NysD2
20628. .121308
                                                                                                                                                                                                                                                                                                                                                                                                                       /product= "NysN protein"
/note= "CDS does not include
complement(60238. .61296)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  product= "NysK protein"
7503. .58687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4792. .51099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   product= "NysJ
1155. .57355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              product= "NysI complete protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PKS; macrolide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nystatin
                                                                                         Š
            synthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ds.
                                                                             , Fjaervik
Sletta H,
                                                                                                                                                                                                                                                                                                                                                                  "NysR4 (long)
                                             AAE10145,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein"
6. .58980)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein"
            polymucleotides
                                                                                                                                                                                                                                                                                                                                                                                                   complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene cluster
                                                                             E, Brautaset Gulliksen O;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nystatin;
                                             AAE10146,
                                                                                                                                                                                                                                                                                                                                                                 protein"
                                                                                                                                                                                                                                                                                                                                                                                                  protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                     start
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               start
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA
                                             AAE10147,
              and
                                                                                         Ή
                                                                                                                                                                                                                                                                                                                                                                                                                                     codon"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
            polypeptides, useful
                                                                                         Strom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cluster;
                                             AAE10148
                                                  S
                                                                            В
                                                                                                δ
                                                                                                                         밁
                                                                                                                                             S
                                                                                                                                                                       밁
                                                                                                                                                                                           δ
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       跊
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present invention relates to the cloning and sequencing of the gene cluster encoding a modular type I polyketide synthase (PKS) enzyme involved in the biosynthesis of the macrolide antibiotic nystatin. The nystatin PKS is useful as antifungal antibiotics. The present sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 125401 BP; 15664 A; 49692 C; 42871 G; 17174 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Streptomyces noursei nystatin PKS gene cluster DNA
                                                                                                                                                                       29154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28740
                                                                                                                          29214
                                                                                                                                                                                                                   29094
                                                                                                                                                                                                                                                                                                                                                                                                   28857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29037
                                                                                                                                                                                                                                                                                                            28977
                                                                                                                                                                                                                                                                                                                                                       28917
                                                                                                                                                                                                                                                                                                                                                                                                                                                28800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28680
                                                                                                                                                                                                                                          548
                                                                                                                                                                                                                                                                                    488
                                                                                                                                                                                                                                                                                                                                                                              383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       86 GCCGCACGCTCGTCGACCTCGTACCGCCGCCGGGACGCCGGACGCCTGCTGGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            455;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1; Page 188-254;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGACGTCACCGCGCGGGGCCCGAACTCGCGGCCCCTCCGGGACGCGGACC---TCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCCTGGACGAGGCCGGCGTGCACGCGCCCCTGTGGTGCGTCACCCGCGGCGCGCCGTCGCGG
           ACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCCGGGCCAGGACC
                                  TCGCCGGGCTCTGGGGCGTGCGCGGCCGGGCCGAGGCCGCGTCCGGCGCCTACCTCG
                                                       CCCCGGGCGCGCGACGCCCCGGGCCATCCCGGGGATGCGACGGCGCCGGGAACCTCG
                                                                             CCGCCCTAGGCGCCCCTCACCGGCCGGCCGCTGGACGCCTTCGTCCTCTTCGGCTCCA
                                                                                                  TCGCCGCGCTCCTCGACGGACTGCCCGACGACACCCCCGCTCACCGCGGTCGTGTACGCGC
                                                                                                                                                                                           ceecaccecceccecaerecrecrecceccrecres
                                                                                                                                                                                                                  TGGCCGCGCTCGGCGCCCCGGATCACCGTCGTGGACCACGACCCACCGCCCCCGGACGGCT
                                                                                                                                                                                                                                       rccrcrccrrceeccrceccrceccrceeccrceeccrceeccrceeccrceecccreeccee
                                                                                                                                                                                                                                                               TGACCGCCCCGACGCACCACGACCGCCGCGGACACCGAGGCCCTGACG---GCCGAAC
                                                                                                                                                                                                                                                                               GÉACCATGGGCGGCCGGCCCGCTGGCTGGTCCGCGAGGGCGCCCCCCCACCTCGTCC
                                                                                                                                                                                                                                                                                                                                 CCCTGCTG-----
                                                                                                                                                                                                                                                                                                                                                       ACGGTGCCACCTGGCTGCCGACCGGCACCGTCCTGGTTGTCGGCGGCACCGGCGCACCG
                                                                                                                                                                                                                                                                                                                                                                            CCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCACGG
                                                                                                                                                                                                                                                                                                                                                                                                  TCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCCCCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCACGCCGCCGGGCTGCTCGCCGCGCACCTGGCCGCGC---CGGGCACCGAGGCCGAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCGGCCGGCGCCCCCCCCGACACCCCTGTCCGGACGGGCATGGCCGCGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGCGCTGGACCACCCGGACCGCTTCGGCCGGCCTGGCCGACCCCGACACCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCCCCGTGACCCGGCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             266pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>۰</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 115.6; I
Pred. No. 5.9e
0; Mismatches
 =
                                                                                                                                                                                                                                                                                                                                - ceecrcerceaeeeceeceecaeccccaraceec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .9e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            459;
Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
```

907 29393 847 29273

727 29213 667

787

29333

607

29093

29153

29036

487

547

442 28916 382

```
ARESULT 9
AAX53491
ID SA492
AXX
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX5
XX AAX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                            end and the juxta-section between coding and non-coding regions and all segments of RNAs encoding proteins associated with one or more diseases, conditions or mixtures. The antisense oligonucleotides may be derived from sequences AAX55272-74. These multiple target oligonucleotides (specifically AAX55180-271) can be used for the antisense treatment of diseases and conditions. Typical diseases and conditions are those associated with impaired respiration and inflammation, including lung diseases, pulmonary vasoconstriction, inflammation, allergic rhinitis, acute asthma, allergies, asthma, impeded respiration, respiratory distress syndrome, pain, cystic fibrosis, pulmonary hypertension, and the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of
                                                                            pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), and cancers such as leukemias, lymphomas, carcinomas colon cancer, breast cancer, lung cancer, menaceratic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases well as all types of cancers which may metastasize or have metastasiz to the lungs, including breast and prostate cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Antisense oligonucleotide; multiple target; antisense treatm impaired respiration; inflammation; lung disease; pulmonary vasoconstriction; inflammation; allergic rhinitis; acute asthma; allergy; asthma; impeded respiration; respiratory distress syndrome; pain; cystic fibrosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The specification describes antisense oligonucleotides (AAX52869-X55271) directed against at least 2 mRNAs selected from target genes, coding and non-coding regions of RNAs corresponding to target genes, gene initiation codons, genomic flanking regions, intron-exon borders, the 5 -end, the 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17-SEP-1997;
09-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       pulmonary hypertension; pulmonary vasoconstriction; emphysema; chronic obstructive pulmonary disease; leukemia; lymphoma; carcinoma; colon cancer; breast cancer; lung cancer; pancreatic cancer;
    Sequence 114955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   vasoconstriction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         New antisense oligonucleotides used in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1999-229400/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              W09913886-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               prostate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hepatocellular
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human adenosine Al receptor antisense oligonucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAX53491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VIND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGAC 945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGCCTTCGCCCGCGCCTGCCGCGACCGCGCACCCCGGCACTGGCCGTCGCCTGGGGCG 29453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Page 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EAST CAROLINA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97US-0059160P.
98US-00093972.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     carcinoma; kidney cancer; melanoma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US019419
        ВP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA; 114955
    6071 A; 29417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ВÞ
    Ç
    36712 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         treatment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              antisense treatment
    21328 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hepatic metastasis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     e.g.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fragment.
    0
    ς;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pulmonary
                                                                                                                          metastasized
                                                                                                                                                                     metastases,
    21427 Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       initiation end, the 3'
                                                                                                                                                                     96
                                                                                                                                                                                                                                             ά
```

AAD17184 ID AAD1 XX

AAD17184 standard;

DNA;

65140

₽P

RESULT 10

```
밁
                                                                                                      S
                                                                                                                                                                           Ś
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 융
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
104895
                                                                                                                                                                                                                     104715
                                                                                                                                                                                                                                                                                           104655
                                                                                                                                                                                                                                                                                                                                                                   104596
                                                                                                                                                                                                                                                                                                                                                                                                                                            104536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  104476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           104416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   104356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         104296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        104176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             103996
                                                                                                                                                                                 781
                                                                                                                                                                                                                                                       721
                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  321;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15
GCBGGCCBGGCGCGCCGGCCGGCCGSNNNDNNGC
                                CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGC
                                                                                                        AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGC
                                                                                                                                                                                 GCCGACGCCCCGGGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGGCCGGG
                                                                                                                                                                                                                                                     ceaececroeseceaececrocrococcecececececeseceaeceaecesecer
                                                                                                                                                                                                                                                                                           GSNINDINICCGCBGGCCBGGGCGCCSNINDINICCGCBGGCCBGGGCGCGCSNINDINIC
                                                                                                                                                                                                                                                                                                                                                                  CCGCCSNNNDNNCCGCBGGCCBGGGCGC-GCCGCSNNNDNNCCGCBGGCCBGGGCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCGGSNNNDNNCCGCBGGCCBGGCGCGCCGCCGSNNNDNNCCGCBGGCCBGGGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CBGGGCGCGCCGGCCGGGSNNNDNNCCGCBGGCCBGGCGCGCCGCCGGCCGGSNNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NGGCGTCGGGCCGGGCSNNNDNNGCGTCGGGCCGGGCSNNNDNNCGTCGGGCCGGGCSNN 104175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGGGCSNNNDNNGCGGCGTCGGGCCGGGCSNNNDNNCGGCGTCGGGCCGGGCSNNNDN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAGGCGGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGGGGACGGCCGGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGCGTCGGGCCSNNNDNNTGGCGGCGTCGGGCCSNNNDNNGGCGGCGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGCAGCGTCGTCGTCGGCGGCAGCGGGGGGGGGGGGGGCATGTTCGCCGGGCTGCTGCG
                                                                      GSNNNDNNCCGCBGGCCBGSNNNDNNCCGCBGGCCBSNNNDNNCCGCBGGCCSNNNDNNC
                                                                                                                                            GSNNNDNNCCGCBGGCCBGGCSNNNDNNCCGCBGGCCBGGGSNNNDNNCCGCBGGCCBG
                                                                                                                                                                                                                     CGCBGGCCBGGGCGSNNNDNNCCGCBGGCCBGGCGSNNNDNNCCGCBGGCCBGGCC
                                                                                                                                                                                                                                                                                                                             GGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                    eceeceaceaceacecececeaceaearecrecrecrecrecececererecrecrecrecrecee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGTGCTCCTCTCGGGGCTCGCCCTCGCCCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCSNNNDNNCCGCBGGCCBGGGCGCGCCGCCGCCSNNNDNNCCGCBGGCCBGGCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTACGGCTCACGGCGGAGGAGCACGACCGGACGGCCGACCCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNNCCGCBGGCCBGGCGCCGCCGGCCGSNNNDNNCCGCBGGCCBGGGCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGCCGGCCGTCACGGC-----CCTGCTGCGGCGCTCGTCGAGGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCCGGGCCSNNNDNNCCGCBGGCCBGGCCGCCGCCGGCCGGCSNNNDNNCCGCBGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCATGGCCGCGGAGCTCGCGGCCCACGCCCCGGCGTCCAGCACGTGGGCCTCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCBGGCCBGGGCGCCGCCGGCCGGCCGSNNNDNNCCGCBGGCCBGGGCGCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGCTCATGCGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NDNNGTCGGGCCGGGCSNNNDNNTCGGGCCGGGCSNNNDNNCGGGCCGGGCSNNNDNNCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGCCTGGTGGGCGACGTCACCGCGCGCGGGGCCCGAACTCGCGGCCGCCCTCCGGGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 115.4; DB 2
Pred. No. 6.4e-07;
1; Mismatches 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  - cegececectectcecceacaccccretccetccegace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    502;
104933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 114955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134
                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             366
                                                                                                                                                                                                                     104774
                                                                                                                                                                                                                                                       780
                                                                                                                                                                                                                                                                                                                                                                                                      660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         104475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               104415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           104055
                                                                      104894
                                                                                                                                            104834
                                                                                                                                                                                                                                                                                           104714
                                                                                                                                                                                                                                                                                                                                                                  104654
                                                                                                                                                                                                                                                                                                                                                                                                                                          104595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  104535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      104235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
••
```

```
(UYNO-)
(SNTF)
(ALPH-)
(SINV-)
(DZIE/)
(ZOTC/)
                                                                                                                                                                                 08-FEB-2000; 2000GB-00002840
10-APR-2000; 2000GB-00008786
14-APR-2000; 2000GB-00009387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                          08-FEB-2001;
                                                                                                                                                                                                                                                                                                                                                                                                   WO200159126-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Polyketide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAD17184;
UNIV NORGES TEKNISK NATURVITENSKAPELIGE. SINTEF STIFTELSEN IND TEK FORSK. ALPHARMA AS. SINVENT AS. DZIEGLEWSKA H. ZOTCHEV S B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    synthase; PKS
; antibiotic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  noursei
                                                                                                                                                                                                                                                                                            2001WO-GB000509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product= "NysD2 partial protein"
/note= "CDS does not include stop
complement(1056. .2576)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers complement(1. .1035)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (62551.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    product= "ORF2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               product= "NysR5"
note= "CDS does"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                product= "NysE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= b
/product= "NysD1
                                                                                                                                                                                                                                                                                                                                                                                                                                                product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             product= "NysR4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                product= "NysR3
0415. .61047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            product = "NysR2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          product= "NysR1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                product= "NysC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            product= "NysB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    product= "NysA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PKS; macrolide; ic; nys1; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . .6906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nys1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . .57190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .16530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .64961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .51015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .49840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .62497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .59963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .54305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA of nystatin
                                                                                                                                                                                                                                                                                                                                                                                                                                                   "ORF1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           does
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      does
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                              protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5 protein"
5 not include
1. .63615)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein"
not include
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (short) protein" not include star
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            nystatin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           include
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     start
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           start
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      start
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  start
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cluster.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene cluster,
                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                  S
                                                                                                                                              Š
                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zotchev
Valla S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The present invention relates to the cloning and sequencing of the cluster encoding a modular type I polyketide synthase (PKS) enzyme involved in the biosynthesis of the macrolide antibiotic nystatin nystatin PKS is useful as antifungal antibiotics. The present sequence a Streptomyces noursei nysl DNA of nystatin PKS gene cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2001-557614/62.
P-PSDB; AAE10125, AAE10126, AAE10127, A
AAE10131, AAE10132, AAE10133, AAE10134,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New nystatin polyketide synthase as antibiotics and antifungals.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (BRAU/)
(STRO/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (SEKU/)
                                                                                                                                                                                                                                                                                                                                                                                                                     20227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147
                                                                                                                                                                                                                                                               507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     449;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            / SB, beau
S, Ellingsen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEKUROVA O N.
FJAERVIK E.
BRAUTASET T.
STROM A R.
VALLA S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                h 11.8%;
Similarity 46.9%;
49; Conservative
  GCGGCCGCCGGCCTGATCCGCACCGCCCCGAGAACCCCGGCCGTTTCGCCCTC
                                                                                                                                                                                                                                                                                                               CGACCTGGTCGTCACCACCCTCACCACCACCCGGGCGCCCCCGTCCCCGACGCCGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACCGTCGCCGTCCTCGGCCCCGACCCGGACGCCCTCGCCGACACCCTCCGCGCCACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         eccesececerecrococces and control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCCCCGTGACCCCGGCTCATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCCGCCGCCTACGCCGACCTCGGCGCCATCAGCCGCGGCGGCGGCCTGCCGTTCGCCTGGGA 19926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cerceececaeceececereececarerrerrercecececrecrecees
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Page 116-151;
                                                esrecrecrececeres es es estados es estados estados estados es estados en entre estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados estados
                                                                                                      CGACGCCCGGCTCGTCACCCGCGC--GCCACCGACGCACCGACCCGCCGCCGCC
                                                                                                                                                 CGCCACCACCGCCGTCCTCGCCCTCGCCCAACAGTGGCTCGCCGACGACCGCTTCGC
                                                                                                                                                                                                                                                         GCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCGGAGGAGCACGA
                                                                                                                                                                                                                                                                                                                                                                                                                     CATCCGGACCACCGCCCCCCGCGACCTGGCCGCCCCCCGACGCCGAAGGGCCCGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATGACCGGCCGACCCGTGGCCGTGGTCACCAGGGACGGGCCGGGCGTCACGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGACTCCCTCTTCCACGTCGAGTGGACCCCGCTCCAGGGCCGCCCGGGCCCCGCACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGAGGACACCGTCACCATCGCCGTCTACGACGCCGCCGGCGGCACCGTGCTGTCCGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sekurova O
llingsen TE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ₿₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8270 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ON, Fjaervik
3, Sletta H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             266pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25171 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 114.8; | Pred. No. 8.8e | 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        polynucleotides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E, Brautaset
Gulliksen O;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAE10128, A
4, AAE10135,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8; DB 4;
3.8e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      G; 9426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAE10129, AAE10130,
AAE10136, AAE101:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0 U;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        polypeptides, useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Strom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAE10137.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence
                                                   CGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
```

86

2

18

206

20046

20346

506

566

20406

999

20524

626

20464

20286

446

20166

326

20106

266

386

20226

```
RESULT 11
AAL61171
ID AAL61
XX AAL61
XX AAL61
XX AAL61
XX ACtin
XX Mayta
CO ACTIN
XX MO200
XX MCTIN
XX MO200
XX MCTIN
XX MO200
XX MCTIN
XX MO200
XX MCTIN
XX MO201
XX MO201
XX MO201
XX MPI;
XX MPI;
XX MOYEL
PT EXPRES
XX MOYEL
PT CLUST
XX MOYEL
PT CLUST
XX MOYEL
PT CLUST
XX MOYEL
PT CLUST
XX MOYEL
PT CLUST
XX MOYEL
PT CLUST
XX MOYEL
PT CLUST
XX MOYEL
PT CLUST
XX THE
CC STABAT
XX SEQUM
SQ SEQUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
          밁
                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                 Query Match
Best Local &
Matches 417
                                                                                                          The invention relates to maytansinoid produced by bacterial host cell transformed with expression vector comprising open reading frame from ansamitocin gene cluster I of Actinosynnema pretiosum. Maytansinoid is useful as a potent antitumour agent. The present sequence is A. pretions ansamitocin gene cluster I polyketide synthase (PKS) gene
                                                                                                                                                                                           Novel maytansinoid produced by bacterial host cell transformed with expression vector comprising open reading frame from ansamitocin gene cluster I of Actinosynnema pretiosum, useful as antitumor agent.
                                                                                          Sequence
                                                                                                                                                                          Disclosure;
                                                                                                                                                                                                                                      WPI; 2003-493374/46.
                                                                                                                                                                                                                                                                                                                                            05-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                 Maytansinoid;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Actinosynnema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAL61171;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAL61171 standard;
                                                                                                                                                                                                                                                                                                  21-NOV-2001; 2001US-0332158P
                                                                                                                                                                                                                                                                                                                                                                                   Actinosynnema
                                                                                                                                                                                                                                                                                                                                                                                                                                                         22-SEP-2003
                                                                                                                                                                                                                                                                                                                       21-NOV-2002; 2002WO-US037547.
                                                                                                                                                                                                                                                                               (UNIW ) UNIV WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20645
          8232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         667
                                                 417;
                              w
                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCCGCCACCTGCTCGCCAGCCGCCGCCGGCCCGACGACGACCC 20822
        GCGCGTCACCGCGACCGGCGCCGCCCCCCCCCCCGGGGCCGGTGCTGGTGGTCGGGGAGGCCGC
                            9222 BP; 784 A; 3437 C; 3858 G; 1143 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCGACCTCGCCCCGACACCCGGCCGGCCCGACCCCGAGACCCTGGCCACCGCCCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGGCCGGGCCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCGTGTCCCGCTCGCCACCGAACCCACCTGGAACCCGGACGGCACCGTCCTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCCGGGCGCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCGCGGGAACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cTCGCCGAGGCCCTGCGTTCGCCGCGCGCGTCGGACGACCCGGACCGTGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ĭ
                                                                                                                                                                         Page 53-58; 160pp; English
                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                                                                                                                                                                                   pretiosum
                                                                                                                                                                                                                                                                                                                                                                                                                 ansamitocin;
                                                                                                                                                                                                                                                                                                                                                                                                                                   pretiosum polyketide
                                                                                                                                                                                                                                                          Leistner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         entry)
                                                         11.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9222
                                                                                                                                                                                                                                                          E
                                                                                                                                                                                                                                                                                                                                                                                                                  antitumour;
                                               Score 111.8; DB 8
Pred. No. 3.4e-06;
0; Mismatches 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                    synthase
                                                                                                                                                                                                                                                                                                                                                                                                                polyketide
                                                                    DB 8;
                                                 487;
                                                                                                                                                                                                                                                                                                                                                                                                                                    (PKS)
                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                synthase;
                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                    #2
                                                                     9222;
                                               u
۲۰
                                                                                                                                                                                                                                                                                                                                                                                                                 enzyme;
                                                                                                                        pretiosum
                                                                                                                                  2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       964
         8291
                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        726
XXXXXXXXXXX
                                                                                                  RESULT 12
AAL61224/c
                                                                                                                                                        δ
                                                                                                                                                                                 멍
                                                                                                                                                                                                  δ
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δÃ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
        Maytansinoid;
                            Actinosynnema
                                                 22-SEP-2003
                                                                    AAL61224;
                                                                                        AAL61224 standard; DNA; 82746
                                                                                                                                            9132
                                                                                                                                                                                   9072
                                                                                                                                                                                                                            9012
                                                                                                                                                                                                                                                                                                            8892
                                                                                                                                                                                                                                                                                                                                                                                             8772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8472
                                                                                                                                                              900
                                                                                                                                                                                                                                                                                                                                660
                                                                                                                                                                                                                                                                                                                                                                         600
                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          123
                                                                                                                                                               CCAGGAC
                                                                                                                                            CCAGGAC
        ansamitocin; antitumour;
                            pretiosum
                                                 (first
                                                                                                                                                              906
                                                                                                                                            9138
                            ansamitocin biosynthetic
```

```
63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCGTGCTCCTCTCCGGGCTCGCCCTCGCCTCGGCGTCGACGTCCGGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTGGTCGTGTTCGCGCGGACGCCCGAGGTGGTGCTGCCCGAGCCGAGGACCGCCCAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGGGCGGAGCTGGTCGCCGCCTGGACGACCACCGCCCGGACTGGGTCGTGCTCGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGGGCGTGGTGGCGGCCTGCGGGGTGCGCGAACCGGTCGTGCTGCCCGCCGACTCGGG
CAGGCTGCGCCCTGCTCGCCCGTGTCCGACGAGGGCGACGGCCGGGACGGCGCTGG
                                                   GAACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGG
                                                                                                   TGCCGACGCCCGGGGCGACGCCCCCCGGGCCATCCCGGGGGATGCGACGGCGCCGG
                                                                                                                                                                                                  CGCCGCCGTGCTGGCGGGGCTGCTCGACGGCGGCGACCCGGTGACCTCGGGCCTGGACCG
                                                                                                                                                                                                                              CCGGGCCTCGCCGAGGCCCTGCGCCTTCGCCGCCGCCGGCGACGACCCGGACCC
                                                                                                                                                                                                                                                                                                   CGCCACCGGCCTGACCCTGCCGCGACCCTGCTGCTTCGACCACCCGACGGCGGCCGAGGT
                                                                                                                                                                                                                                                                                                                                            CGGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                    GTTCCGGGACCTGGGGTTCGACTCGATGACGGCGGTGGAGCTGCGCGACCGCCTGGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGGGACGGGCCGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ceregececerejacecegerentes
                                                                                                                                                                                                                                                                                                                                                                                                                                                  eaceaceAceaceAcceccecccAccAeer@crecreeccrecreecceererecree
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGAGCCGGACGCGGTCGACCTGACCGGCCCGGACCGGGACCGGGTGCTGCTGGCGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTGCCCGCGACCCTGCTGTGCGCGGGACCGGGGCACGCCGCCGCTGAGCCCCGAGCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAACCCGATGTTCGCCCCCCCCCCCGCCGGCATGACCGGCCGACCCGTGGCCGTGGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cecerrocegeacecegacerecreerecreerecaneaceaegacerecereaaege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACGGCCGGA---CGCCTGCCTGGTGGGCGACGTCACCGCGCGGGGCCCGAACTCGCGGC 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGTACGGCTCACGGCGGAGGAGCACGACCGACGGCGGCCACCCAGGCCCTGACGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCGCCGGACGACGCGGGCCTGGCGCTGGCCGCGCTGGACGAGCTGACCCGCGACCG
                                                   899
                                                                                                                                                 839
     9131
                                                                                                                                                                                                                                                                                                                                                                                                    8891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  359
                                                                                                 9071
                                                                                                                                                                                                  9011
                                                                                                                                                                                                                                                  779
                                                                                                                                                                                                                                                                                                   8951
                                                                                                                                                                                                                                                                                                                                                   719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8351
                                                                                                                                                                                                                                                                                                                                                                                                                                                    659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               239
```

股

gene;

gene

н

```
Š
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                 밁
                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                 몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 417;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention relates to maytansinoid produced by bacterial host cell transformed with expression vector comprising open reading frame from ansamitocin gene cluster I of Actinosynnema pretiosum. Maytansinoid is useful as a potent antitumour agent. The present sequence is A. pretic ansamitocin ansamitocin biosynthetic gene cluster I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Novel maytansinoid produced by bacterial host cell transformed with expression vector comprising open reading frame from ansamitocin generalister I of Actinosynnema pretiosum, useful as antitumor agent.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-NOV-2001; 2001US-0332158P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-NOV-2002; 2002WO-US037547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (UNIW ) UNIV WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Actinosynnema
                                                                                                                                                                                                                                                                                                                                                    14371
14191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2003-493374/46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7; Page 105-152; 160pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                   GCGGGGCGTGGTGGCGGGCTGCGGGGTGCGTGCTGCTGCCCGACTCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAGCGGCTTCCCCCGCAGCGTCGTCGTCGGCGGCAGCGGCAGCGGTGGGCGGCATGTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  82746 BP; 10231 A; 31648 C; 32359 G; 8508 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                       CAGGGACGGGCCGGCTCACGGCCTGCTGCGCGCTCGTCGAGGGCGGCGGCAGGCC
                                                                                                                                                                                                                                                                                                                                                 CCTGCCCGCGACCCTGCTGTGCGCGGGGACCGGGCACGCCGCCGCGAGCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGGCGGAGCTGGTGGCCGCCGGACGACCGCCCGGACTGGGTCGTGCTCGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCGTCACCGCGACCGGCGCCCCCCCCCCCCCCGGGGCCGGTGCTGGTGGTCGGGGAGGCCGC
                                                 CGTACGGCTCACGGCGAGGAGCACGACGGACGACGGCCACCCAGGCCCTGACGCA
                                                                                                                                                                                                                                GGTGGTCGTGTTCGCGCGGACGCCCGAGGTGGTGCTGCCCGAGCCGAGGACCGCCCAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGAGGACGCGGTGGCCGCGGGGGTGCTGGCCGCCGCCGCGGGGGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ccegacegecaregecegeaecrosegeceaecececegegerecaecaecaecaecere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ceneececceneaccececicate en contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCGCCGGACGACGCGGGCCTGGCCGCGCGCGCTGGACGACCTGACCCGCGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGACGACGTGGCCCTCAAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Aceecceea---ceccreccreereeceacercaccececeeeeccceaacrcecee
                                                                                                           CGAGCCGGACGCGGACCTGACCGGCCCGGACCGGGACCGGGTGCTGCTGGCGCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ϋ́u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Leistner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 111.8;
Pred. No. 2e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2e-06;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pretiosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ę
                                                                                                                                                                                                                                                                                                                                                                                                         419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     179
                                                    599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62
                                                                                                                                                                                                                             14252
                                                                                                                                                                                                                                                                                                                                                 14312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14672
```

```
RESULT 13
AAL61172
ID AAL61
XX
AAL61172
AC AAL61
AC AAL61
DT 22-SI
XX
ACti
XX
Mayt
KW Mayt
KW Gene
XX
VO O5-
VX
PF 21-
XX
XX
PF 21-
XX
XX
PF 21-
XX
XX
PF 21-
XX
XX
PF 21-
XX
XX
CC
PT C
CC
PT C
CC
XX
SQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                              The invention relates to maytansinoid produced by bacterial host cel transformed with expression vector comprising open reading frame fro ansamitocin gene cluster I of Actinosynnema pretiosum. Maytansinoid useful as a potent antitumour agent. The present sequence is A. pret ansamitocin gene cluster I polyketide synthase (PKS) gene
                                                                                                                                                               Novel maytansinoid produced by bacterial host cell transformed wi expression vector comprising open reading frame from ansamitocin cluster I of Actinosynnema pretiosum, useful as antitumor agent.
                                                                                                                                  Disclosure; Page 59-61; 160pp; English.
                                                                                                                                                                                                                                                                                                                                    21-NOV-2001; 2001US-0332158P
                                                                                                                                                                                                                                                                                                                                                                    21-NOV-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Actinosynnema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Maytansinoid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Actinosynnema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAL61172 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                    WO2003045312-A2
                                                                                                                                                                                                                                                                                                   (UNIW ) UNIV WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTCCGGGACCTGGGGTTCGACTCGATGACGGCGGTGGAGCTGCGCGACCGCCTGGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAGGAC 906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGGCTGCGCGCCCTGCCCGCCCTGTCCGACGAGGGCGACGGCCGGGACGGCGCTGG 13832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAACCTCGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGACCCGGAGCTCGCGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGGAGGCCGCCCGACCCGCCGCCGACCCCGCGCCTGCGCGCGTCCGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCCGACGCCCCGGGCGGCCGACGCCCCCCCGGGCCATCCCGGGGGATGCGACGGCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCCGCCGTGCTGGCGGGGCTGCTCGACGGCGGCGACCCGGTGACCTCGGGCCTGGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCCGGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCACCGGCCTGACCCTGCCGGGGCCGACCCTGCTGCTTCGACCACCCGACGGCGGCCGAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   egcegceacegececcecceccaecaegerecrecrecrecrecrecres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cedevecceceventary constructive de la constructive de la construction de la construction de la construction de
                                                                                                                                                                                                                                                                                                                                                                    2002WO-US037547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry
   BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pretiosum
                                                                                                                                                                                                                                                                  Η,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ansamitocin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pretiosum polyketide synthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13825
 485 A; 1947 C; 1809 G;
                                                                                                                                                                                                                                                                  Leistner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antitumour;
                                                                                                                                                                                                                                                                  М
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   polyketide
 529 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (PKS)
   ou;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   synthase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
   0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   enzyme; PKS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   659
```

Query Match Best Local S Matches 395

Similarity

11.5%;

395;

Conservative

0,

Score 111.6; DB 8; Pred. No. 4.2e-06; 0; Mismatches 429;

Length 4770;

Indels

6

Gaps

```
RESULT 14
AAL61173
ID AAL61
XX AAL61
AC AAL61
XX ACL1
XX ACL1
XX ACL1
XX ACL1
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAYLE
XX MAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                  WO2003045312-A2
                                                                                                Actinosynnema
                                                                                                                                                                                       Maytansinoid;
gene; ds.
                                                                                                                                                                                                                                                                                                                       Actinosynnema
                                                                                                                                                                                                                                                                                                                                                                                                               22-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAL61173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGTCGCGATCTCCCCGCACGACGGCCCGGCCGGACCCCGCCCACCCTGGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCCGTGACCCGGCTCATGCGGCCGGCGCGCTGCTCGCCGACACCCTGTCCGTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGCCAGGA 905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACGGCACCGCCCCACCAGGTGCTGCTCGCCTCCTGGCCGGTGTGCTCGGCGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | GCTCCTCCTTCGGGCTCGCCCTCGCCCGCCTCGGCGTCGACGTCCGGGCCCTGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCAGGCGCTCGGC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGCACACCGCGCGCGGGCGTCCTTGCCACGCGGGGGGGCGCGACGTGCTCACCCTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATGTTCGCCCCCCCCCCGCCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGA 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTGGACTCCTGGCGCTACCGGATCACCTGGCGC---ACCCTGCCCGAACCGCCCGAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cceseacecesaccreerecreerecrescaceaesacerescereaeseceresc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ceaccreeae de conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva del la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva del la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva de la conserva del la conserva de la conserva de la conserva de la conserva de la cons
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACGACGACGAAGGCG 955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGCGCCGAACCGCAGGCCCCGGCCCCCCGTGGACCCCGCGCGCACGGTCCTGATCAC 3442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGGCCGGGCGTCACGGCCCTGCTGCGGCGCTCGTCGAGGCGGCGGCGGCAGGCCCGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCGGCGCGCGCCGACCCGCGACGCGACGCGCCCCTCGCCGACCTGCTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      egecareaccie e a accidencia de constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en constante en 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCCCGCGCGCGACTGGCTCGTCGGACCGCACCCCGACCTGCTGGCCGACCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGGACGCCTGCCTGGGGCGACGTCACCCGCGCCGGGGCCCGAACTCGCGGCCCCT
                                                                                                pretiosum
                                                                                                                                                                                                                                                                                                                       pretiosum polyketide synthase (PKS)
                                                                                                                                                                                                                                ansamitocin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GACGCGGGCGCCACCGCGCCGCTGTGCGCCACCACCACCGGGGC
                                                                                                                                                                                                                                antitumour;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ВP
                                                                                                                                                                                                                                polyketide synthase;
                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                       #4
                                                                                                                                                                                                                                enzyme;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3613
                                                                                                                                                                                                                                PKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3503
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                         밁
                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     日
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The invention relates to maytansinoid produced by bacterial host cel transformed with expression vector comprising open reading frame fro ansamitocin gene cluster I of Actinosynnema pretiosum. Maytansinoid useful as a potent antitumour agent. The present sequence is A. pret ansamitocin gene cluster I polyketide synthase (PKS) gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Novel maytansinoid produced by bacterial host cell transformed expression vector comprising open reading frame from ansamitoc cluster {\bf I} of Actinosynnema pretiosum, useful as antitumor agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Page 62-67; 160pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VINU ( WINU)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3956
                                                       665
                                                                                                                                                                                                                                                                                                                                                                                                     545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11.3%;
Similarity 46.8%;
GCATGGCCGCGGAGCTCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cceccaagecaageccegacegarcerceregasacacegacegecrecece
                                                                                                                                                                                                                                                                                                                       CGCACCCGCTCACCGGCGTCGTGCACCTGGCCGCCGCGCTCGACGACGGCACGATCACCG
                                                                                                                                                                                                                                                                                                                                                                                                     recreterrecerecerecerecerecerecereceres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCACGGCGGAGGAGCACGACGGGACGACG---GCGGCCACGCCAGGCCCTGACGCACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           egccegecercacegccrecrecegcreceaegcegecegecegcaegacecegracegc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCTCGTCACCGCCCGCGCGCGCGCCACCTGCTGCTCAGCCGCCGCGGGGCCCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGTTCGCCCCCCGCCGCCATGACCCGCCGACCCGTGGCCGCCGTGGTCACCAGGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGGTCACCGCGCGAGGTTGCGCCGCGCGCCCCCGAGGGCGCCGCACCCGTCCTGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ccereacionario de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra del la contra del la contra del la contra del la contra del la contra de la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGACGCGGACCTCGTCGTCGCCGTACACGACGACGTCGCCCTCAAGGCCGTGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ĠĊĠĠĊĠAĠĠĠĊĊĊĠĠAĊĠĠĊĠĊĠAĊĊĠĊĠĠĠĀĊĠŦĊĊĠĊĊŦŦĠĊĀĊĠĠĊĊŦĊĠŦĊĊĠĊŦ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ecrecegasecegecasececacecrecrecrecacecrecrecrecececegacegec 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9975 BP; 947 A; 4102 C; 3795 G; 1131 T; 0 U; 0 Other;
                                                                                                                                              CGCTCACCCCGACCGCGTGCGCCGGGTCCTCGCCCAAGGCCACCGCCGCCGCCCACC
                                                                                                                                                                                                                       ceaceecaccecceccaccaegrecrecreccccrecreeccererecreeceeca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001US-0332158P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2002WO-US037547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Leistner
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 109.8; DB 8; Pred. No. 5.9e-06; 0; Mismatches 467;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      from ansamitocin gene antitumor agent.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9975;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4
```

Gaps

N

4015

487 4075 427 3895 247 3835 187

4315

4255

664

```
RESULT 15
AAD54645
ID AAD54
XX AAD54
XX AAD54
XX Strep
XX Polye
OS Strep
XX Polye
OS Strep
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                          Streptomyces nodosus amphotericin (amph) biosynthetic gene cluster
                                                                                                                                                                                                                                                                                                                                                                                                           AAD54645
                                                                                                                                                                                                                                                                                                                                                                                                                           AAD54645
                                                                                                                                                                                                                                                                                                                                                         Polyene; antibiotic; amphotericin; amph;
                                                                                                                                                                                                                                                                                                                                                                                           26-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4316
                                                                                                                                                                                                                                                                                                                                                                                                                            standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCGGCGCGCGCCAGGGCAACTACGCGGCGACGCCTACCTGGACGGCTGGCCC 4435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCCGCTGGTCGGCGACGACCCCGGACCGCTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCGCCCCTGACCGAGGCCGAGGGCCTCGCCCTGTTCGACGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGACCGGCCTCACCGGCTCCCTGTCCGGGACCGACCGGGAGCGCATGGCCGCGTCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGAGCGCCACGGCCGGGCTGCCCGCCACCTCGATCGCCTGGGGGCCTGTGGGGCCGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGCCCCCGGGCGACGCCCCCCGGCCATCCCGGGGATGCGACGGCGCCCGGGAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGCACGAGCTGACCTCCGACCTGGCGCTGTTCGCCCTGTTCTCCTCGGCCTCCGGCGTGC
                                                                                                                                                                                                                                                                                                                                           nodosus.
                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
/product= "ORF2, ]
59869. .61470
/*tag= j
                                                                                                                                                                         extension modules 9, nodosus amphI gene" 33584. .50518
                                                                                          /product= "Polyketide
extension modules 18 a
nodosus amphK gene"
56829. .58019
                                                                                                                                                 extension modules
                                                                                                                                                                                                                          /product= "GDP-mannose
amphDIII gene"
                        /*tag=
                                 complement (58756.
                                                          58139.
                                                                                                                                                                                                  /product= "Polyketide
                                                                                                                                                                                                                  5042. .33574
                                                                                                                                                                                                                                                                                                                   complement (4. .1824)
                                                                         /product= "Cytochrome
                                                                                                                                                 /product= "Polyketide synthase multienzyme housing
extension modules 15, 16 and 17 encoded by S. nodo
                                                                                                                                                                                                                                                                  /product= "ABC
                                                                                                                                                                                                                                                                                   complement (1805.
                                                                                                                                                                                                                                                                                                                          ocation/Qualifiers
                                         product= "ORF1,
                                                                                                                                                                                                                                                                                                  product= "ABC transporter
                                                  *tag=
                                                                                   *tag=
                                                                                                                                                                                                           *tag=
                                                                                                                                                                                                                                            *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                           DNA; 113193
                                                                                                                                                                                                                                                  .4874
                                                                                                                                         gene"
                                                          .58648
                                                                                                                                   56675
                                                                                                                                                                                                                                                                                                                                                                                                                            ВP
                                                                                                                                                                                                                                                                   transporter
                                 hypothetical . .59610)
                 hypothetical protein"
                                                                                                                                                                                                                                                                                   .3628)
                                                                                                           and
                                                                                                                                                                                          synthase multienzyme 10, 11, 12, 13 and 14
                                                                                                        synthase multienzyme housing and thioesterase encoded by S
                                                                          P450
                                                                                                                                                                                                                                   dehydratase
                                                                                                                                                                                                                                                                                                                                                         polyketide; enzyme; gene;
                                                                          encoded
                                                                                                                                                                                                                                                                   encoded
                                                                                                                                                                                                                                                                                                  encoded
                                        protein"
                                                                         βĄ
                                                                                                                                                                                                                                                                  γď
                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                  encoded
                                                                         ŝ
                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                  ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4600
                                                                                                                                                                                                                                                                   nodosus
                                                                         nodosus
                                                                                                                                                                                                                                                                                                  nodosus
                                                                                                                                                                                          housing
encoded
                                                                                                                                                                                                                                  λ̈́
                                                                                                                                                  nodosus
                                                                                                                                                                                                                                  ŝ
                                                                                                                                                                                                                                   nodosus
                                                                                                                                                                                                                                                                                                  amphG
                                                                                                                                                                                                                                                                                                                                                           ds
                                                                                                                                                                                           γģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   784
                                                                                                                                                                                           Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    844
```

```
CDS
                                                                                                                                                               gg
                                                                                                                                                                                                                         Sg
                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
WO200297082-A2
                /*tag= q
/product= "Polyketide synthase m
/product= "polyketide synthase m
extension modules 3, 4, 5, 6, 7
nodosus by amphC gene"
                                                                                                               /product= "Polyketide synthase multienzyme housing extension modules 1 and 2 encoded by S. nodosus by
                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product= "ORF3, hypothetical protein"
/transl_except= (pos:59869. .59871, aa
complement(61798. .61995)
                                                                                                                                                                                                                      /transl_except= (pos:65773.66081. ...70319
                                                                                                                                                                                                                                                 amphDI gene"
                                                                                                                                                                                                                                                                                               complement (64324.
                                                                                                                                                                                                                                                                                                        /product= "NDP-sugar aminotransferase
nodosus amphDII gene"
                                                                                                                                                                                                                                                                                                                                                       complement (63250.
                                                                                                                                                          loading module
70366. .79938
                                                                                                                                                                                                                                                                                                                                                                                                               /product= "Ferredoxin encoded
complement(62051. .63250)
                                                                                                                                            *tag=
                                                                                                                                                                         product= "Polyketide synthase multienzyme loading module encoded by S. nodosus amphA
                                                                                                                                                                                                        *tag=
                                                                                                                                                                                                                                                                  /product= "Glycosyl transferase
                                                                                                                                                                                                                                                                                                                                                                                 /product=
                                                                                                                                                                                                                                                                                                                                                                                                  *tag=
                                                                                    9956. .112709
                                                                                                                                                                                                        o
                                                                                                                                                                                                                                                                                Ħ
                                                                                                                                               ס
                                                                                                                                                                                                                                                                                                                                                                                   "Cytochrome P450
                                                                                                                                                                                                                                                                                             .65775
                                                                                                                                                                                                                                                                                                                                                       .64308
                                                                                                                                                                                                                                                                                                                                                                                   encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .59871, aa:Met
                                                                                                                                                                                                                                     .65775,
                                                                                                                                                                                                                                                                                                                                                                                                                              γ
                                         multienzyme housing
7 and 8 encoded by S
                                                                                                                                                                                                                                                                  encoded
                                                                                                                                                                                                                                                                                                                                                                                                                              ŝ
                                                                                                                                                                                                                                                                                                                                                                                   λq
                                                                                                                                                                                                                                      aa:Met)
                                                                                                                                                                                                                                                                                                                                                                                                                              nodosus
                                                                                                                                                                                                                                                                                                                                                                                   ß
                                                                                                                                                                                                                                                                                                                          encoded
                                                                                                                                                                                                                                                                  λ
                                                                                                                                                                                                                                                                                                                                                                                   nodosus amphN
                                                                                                                                                                         housing gene"
                                                                                                                                                                                                                                                                   ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                              amphM gene'
                                                                                                                                                                                                                                                                                                                         γģ
                                                                                                                                                                                                                                                                                                                          တ
                                                                                                                  amphB
```

05-DEC-2002

27-MAY-2002; 2002WO-IE000071

31-MAY-2001; 2001IE-00000527

Caffrey JP;

(-טמצט)

VIND

COLLEGE

DUBLIN

WPI; 2003-201271/19.
P-PSDB; AAE36116, AAE36117, AAE36118, AAE36119, AAE36120, AAE36121, AAE36122, AAE36123, AAE36124, AAE36125, AAE36126, AAE36127, AAE36128, AAE36129, AAE36130, AAE36131, AAE36132. AAE36128,

Novel cytochrome P450 enzyme and nucleotides encoding the enzyme, usef for preparing amphotericin derivative or analog antibittic agent with altered properties, in biosynthesis of polyketide other than amphotericin.

Claim 1; Page 52-114; 276pp; English

The invention relates to the gene cluster encoding the polypeptides cresponsible for the biosynthesis of the polyene antibiotic amphotericin (amph) of Streptomyces nodosus. Polynucleotides of the invention are useful for preparing amphotericin derivatives or analogue antibiotic agents with altered properties and in the biosynthesis of polyketides other than amphotericin. amphDIII, amphDII or amphDII mutants are useful for producing amphotericin derivatives glycosylated with alternative sugars, amphDIII or amphDII gene sequences are useful in engineered biosynthesis of perosaminyl-amphoteronolide B; amphDIII or amphDII and amphotered biosynthesis of perosaminyl-16-descarboxyl-16-methyl amphoteronolide B; amphDIII, amphDII and amphDI gene sequences are useful in the engineered biosynthesis of perosaminyl-16-descarboxyl-16-methyl amphoteronolide B; amphDIII, amphDII and amphote of mycosamine to a polyketide other than amphoteronolide A or B or for preparing polypeptides for in vitro synthesis of GDP-mycosamine. The present sequence is S. nodosus amph biosynthetic gene cluster

```
र्
                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
     밁
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                श
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 46.2 Matches 439; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 113193 BP; 14248 A; 45141 C; 38354 G; 15450 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   84005 CGCCGCGTACGACGAACCCGACCTCGCCGTACGCGGCTCCGACGTACTGACCGCCCGGCT 84064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83534 CTCCCTCTTCCAGGTCGACTGGAC---CCCGCTGCGGAGCCAGTCCGGGCAGCTCCCGGA 83590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83354 cerécacercéceécereceécecaceaceareceéceces area en careceres es 83413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83294 CGCCGCCTACAACGACCTCGGCGCCATCAGCCGGGGCGGCCTGCCGTTCGCCTGGGAGGG 83353
     84185
                                                                                                                                                                                                  84125 CACCGGCGCACCGGCGGACTCGGCGGCGTCCTCGCCCACCTCGTCACCGAACGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                84065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      83825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83591 GACCGTCGCCCTCGTCGGCGCCGACCCGGCCGGACTCGCCGACACGCTGCGCACCGGCGG 83650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83414 GGACACCGTCTCCATCGCCGTGTACGACACCGCGGGCGCACCGTCCTCTCCGTGGACTC 83473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            306
                                                                                                                                                                                                                                                                                                            846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                    906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66 GCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCGGGACG 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           h 11.2%; Score 108.8; DB 8; Length 113193;
Similarity 46.2%; Pred. No. 4.3e-06;
39; Conservative 0; Mismatches 502; Indels 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCCGCCGCGGCGGTCTGATCCGCACCGCCCCGCACGAGAACCCCCGGCCGCTTCGT 83944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACCACCGCAGCCGCCGTACTCGGCCTGGCACAG-----CACTGGCTGACCGAGGACCG 83824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATGTTCGCCCCCGCCGGCATGACCGGCCGACCCGTGGCCGTGGTCACCAGGGA 425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCCGTGACCCGGCTCATGCGGCGGGCGGCGCGCTGCTCGGCGACACCCCTGTCCGGTCCGGAC 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ceresrereces es estados es estados es estados 
                                                               CCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGAAGGCG 955
                                                                                                                                                                                                                                                                                                 ceaceacearcinoceacearácicos con contra con contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTCCAGGTCACCGTCCACCCCGACCTGGCCGCACTGGCCGCACCCCGCCCCGGTGCC 83710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGC 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gccggacgccrgccrggrgggcgacgacgrcacgcgcccgggaccccgacgccgccgcccr 185
                                                                                                                                                                                                                                                                                                                                                                                                           CGCCCGGGTGCCCGCACCCGACGCCGGCGCCGACTGGAACCCGGACGGCACCGTCCTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCCCCCGGGCCGCCGACGCCCCCCGGCCATCCCCGGGGGATGCGACGGCGCCCGGGGAACCT 845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACGGCACCGCCCCCACCAGGTGCTGCTCGCCCTCTGGCCCGTGTGCTCGGCGGCAG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCCTCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTGGCCGGC 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGGCCGGCCTCACGGCCCTGCTGCGGCTCGTCGAGGCCGGCGGCGCGCAGGCCCGTACG 485
CGTCCGCCGGCTGCTCGCCAGCCGCCGCCGGCCGGCCGACGGCG 84234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGGACCGTGCTCACCGCCCTGCCCGGCGACCAGGACACCCCGGCCGACGCCGACGCCGA 83770
                                                                                                                                                                                                  84184
```

Search completed: October Job time : 595,401 secs

4, 2005, 21:38:16

(Oiqeu) X_{NON} Blank (uspio)

Run

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                    Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OM nucleic -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       92:
        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
DB
      102.6
102.6
100.4
100.4
98.4
98.4
98.4
96.4
95.4
95.4
95.4
95.4
95.4
95.4
                                                                                                                                                                                                                                                                            270.8
270.8
270.8
270.8
270.8
104.4
                                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length:
                                                                                                                                                                                                                                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDENTITY_NUC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-5
969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          October 4, 2005, 21:04:23; Search time 179.767 Seconds (without alignments) 8820.059 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1202784 seqs, 818138359 residues
      Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Issued_Patents_NA:*

| COMB.seq:*
| CGM2_6/ptodate/1/ina/5A_COMB.seq:*
| CGM2_6/ptodate/1/ina/6A_COMB.seq:*
| CGM2_6/ptodate/1/ina/6A_COMB.seq:*
| CGM2_6/ptodate/1/ina/6B_COMB.seq:*
| CGM2_6/ptodate/1/ina/backfIles1.seq:*
| CGM2_6/ptodate/1/ina/backfIles1.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       atgagcggcttcccccgcag.....aaggcgagaaggaccgatga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
                                        1926
1926
1931
4403765
8438
77536
77536
77536
44377
44377
44377
                                                                                                                                                                       2888
3 44377
3 44377
13842
7 36778
7 38506
7 38506
7 38506
7 38506
7 38506
                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000000000
  8 3 US-08-765-907A-2
8 4 US-09-987-614A-2
8 3 US-08-765-907A-1
8 4 US-09-987-614A-1
9 4 US-09-987-614A-1
7 2 US-08-804-198-1
2 3 US-09-105-537-5
3 US-09-105-537-5
4 US-09-114-908-1
6 4 US-09-141-908-1
7 4 US-09-141-908-1
8 4 US-09-141-908-1
9 3 US-09-103-804-1
9 3 US-09-103-804-1
1 2 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-114-2
1 US-09-130-1316-1
2 US-08-804-2376-7
2 US-08-804-2376-7
2 US-08-804-198-1
2 US-09-105-537-1
2 US-09-105-537-1
2 US-09-105-537-1
2 US-09-105-537-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version (c) 1993 - 2005
                                                                                                    . μ ω ·
                                                                                                                                                                                                                                                                                                                                                                    멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          summaries
                                                                                                                                                                                                                                                                                                                                                                                                          SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 5.1.6
Compugen
Sequence 2, Appli
Sequence 1,  Appli
Sequence 19, Appli
Sequence 1, Appli
Sequence 19, Appli
Sequence 19, Appli
Sequence 1, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 1, Appli
                                                                                                                                                                                                                                                                                                                                                                    Description
                                         밁
                                                               á
                                                                                           밁
                                                                                                               δ
                                                                                                                                            밁
                                                                                                                                                                 S
                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-765-907A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2,
Patent No.
GENERAL INF
                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 486; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: BLANC,
                                          199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION:
                                                                                                                                              79
```

	ი				Ω						Ω						
4. 5	44	43	42	41	40	39	38	37	36	ω S	34	33	3 2	31	30	29	28
85.2	86.4	86.6	86.6	86.6	87.4	90	90	90	90.4	90.4	90.6	90.6	90.6	90.6	90.6	90.8	91
8	8.9	8.9	8.9	8.9	9.0	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.4	9.4
1065	23673	43280	9818	1272	1288	77536	77536	23673	20235	20235	12001	4257	4257	4257	4257	4403765	15872
w	w	N	4.	4	ب	4	4	w	ω	Н	ب	4	w	ω	N	w	4
US-08-765-907A-7	US-09-773-816-1	US-08-804-227C-1	US-09-902-540-987	US-09-902-540-9234	US-08-440-856A-9	US-09-940-316B-1	US-09-410-551B-1	US-09-773-816-1	US-08-439-009A-3	US-07-642-734C-3	US-08-458-568A-11	US-09-825-288A-1	US-08-843-659-1	US-09-259-821A-1	US-08-690-473-1	US-09-103-840A-2	US-09-091-609-3
Sequence 7, Appli	Sequence 1, Appli	Sequence 1, Appli	Sequence 987, App	Sequence 9234, Ap	Sequence 9, Appli	Sequence 1, Appli	Sequence 1, Appli	Sequence 1, Appli	Sequence 3, Appli	Sequence 3, Appli	Sequence 11, Appl	Sequence 1, Appli	Sequence 1, Appli	Sequence 1, Appli	Sequence 1, Appli	Sequence 2, Appli	Sequence 3, Appli

ALIGNMENTS

```
; LENGTH: 888
; TYPE: DNA
; ORGANISM: Streptomyces pristinaespiralis
US-08-765-907A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 17
SOFTWARE: PatentIn Ver. :
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRIC-ROSSET, Gilles
APPLICANT: DUTRIC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method For Preparing
TITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
2, Application US/08765907A
5. 6352839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67 crecrecesases es es estados es es estados es estados es es estados es estados es estados es
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19 TTCGGGCGTTGTGTGGTGGTGGGCGGGGGCCGGTGCGGTGGGCCGCATGTTCAGCCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10 TTCCCCCGCAGCGTCGTCGTCGGCGCGCAGCGGCGGCAGGTCGGCATGTT---CGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLANCHE, Francis
COUZET, Joel
BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                             GCGGCGGCGGACGTGGTGGTGGCTGGCGGTGCCGGAGCCGGTGGCGTGGGAGGCGGTGGAG
                                                                                                                                                                                                                                                                               cegeacecegacercerecrecrecrestacaceaegaceregecercaaegeceregece
                                                                                                                                                                                                                                                                                                                                                                                            GGGGTGCGGGTGGTGGTCGTGATGTGCGGCGGCCGGGGCCCGGAGGCCGGTCGCGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGGTGCGTTCGGGGGTGGCGGTGACCTTGGCTGGACGTGGCCGGGGCCGGTGCGGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              THIBAUT, Denis
BAMAS-JACQUES, Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 270.0; DB 3; Pred. No. 9.3e-34; 0; Mismatches 337;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          888;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            س
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       138
                                                               306
                                                                                                                                                                                                                                                                               246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       78
                                                                                                                                                                             258
                                                                                                                                                                                                                                                                                                                                                                                                  198
```

0000

O

იი

78

```
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
VUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 2
LENGTH: 888
TYPE: DNA
ORGANISM: Streptomyces pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                 Sequence 2, Application Upper Patent No. 6833382
GENERAL INFORMATION:
APPLICANT: BLANC, Veronic APPLICANT: BHANGS-JACQUES:
APPLICANT: BHANGS-JACQUES:
APPLICANT: BLANCHE, Frant APPLICANT: BLANCHE, Frant APPLICANT: BHANCHE, Joel APPLICANT: BARRIERE, Joel APPLICANT: BARRIERE, Je
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 2
US-09-987-614A-2
                                                                                  US-09-987-614A-2
                Query Match
Best Local Sim
Matches 486;
                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Streptogramins And Method For Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         787
                                Similarity
                                                                                                                                                                                                                                                                                                                                   BLANCHE, Francis
COUZET, Joel
BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGTGCCCCGCCGCATCTGGCGATGCTGGCGGCTGGCCGGGATCGCCGGCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGTTCGCCCCCCCCCCCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCACGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ecccceeececececcccceecarccceeecareceareceare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GIGCIGGCCTTCGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGCGCTGCGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCATGGCCGCGGAGCTCGACGCCCCCGGCGTCCAACGCACGTGGGCCTCAACCCG
                                                                                                                                                                                                                                                                                                      PARIS, Jean-Marc
DUTRUC-ROSSET, Gilles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGCCCTGTTCGCCGAACTGCGCGGGTGTGCTGGGCGAGCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGGCCGCCCTGGTGCGGCTGGGGCAGGCCGTCGAGAGGGGGCGACGAGGAGACGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGAGGTGTATTTCGACATCCAGGCCGCCCAACCCCGGCGGCGGCGGCGGCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGCCCGGTGTGCCGGCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGCCCGGGTGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGTTCGCCCCCCCGGGGGTCTTCAGGGGGCGGCGGTGGCGGTGGTGGTCACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGATCGCCGGGCGGCTGCGTGAGGCGGCGCGCGGGCTGCAGGCGGTGGGGCTGAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGCTGGCGGGGTGATGCGGCCCGGTGCGGTGCTCGCGGACACCTTGTCGGTCAAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                 THIBAUT, Denis
BAMAS-JACQUES, Nathalie
                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Veronique
                             27.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/09987614A
                  0;
                Score 270.8; DB 4;
Pred. No. 9.3e-34;
0; Mismatches 337;
                                              Length
                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          832
                                                 888;
                                                                                                                                                                                                                                                                                       Same
                بن
--
                                                                                                                                                                                                                                                                                     ₽y
                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   318
                1;
        Sequence 1, Application US/08765907A
Patent No. 6352839
GENERAL INFORMATION:
APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: BANGS-JACQUES, Nathalie
APPLICANT: BLANCHE, Francis
APPLICANT: BLANCHE, Francis
APPLICANT: COUZET, Joel
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: BEBUSSCHE, Laurent
APPLICANT: PARECHON, Alain
APPLICANT: PARIS, Jean-Marc
APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRICK-ROSSET, Gilles
APPLICANT: DUTRICK-ROSSET, Gilles
                                                                                                                                                                                                                       RESULT 3
US-08-765-907A-1/c
                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       皮
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
APPLICANT:
APPLICANT:
APPLICANT:
TITLE OF IN
                                                                                                                                                                                                                                                                                                                                                    739
                                                                                                                                                                                                                                                                                                                                                                                                                 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 319
                                                                                                                                                                                                                                                                                     799
                                                                                                                                                                                                                                                                                                                 787
                                                                                                                                                                                                                                                                                                                                                                                 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
INVENTION: Streptogramins And Method
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGCTGGCGGGGGTGATGCGGCCCGGTGCGGTGCTCGCGGACACCTTGTCGGTCAAGAGC
                                                                                                                                                                                                                                                                                     GCCGCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGCCGGGCGTCACGGCCCTGCTGCGCTCGTCGAGGGCCGGCGGCGGCGGCAGGCCCGTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCATGGCCGCGGAGCTCGCGGCCCACGCCCCGGCGTCCAGCACGTGGGCCTCAACCCG
                                                                                                                                                                                                                                                                                                                   ecccceeecececeacecccceeccarcceeeeeaneceace
                                                                                                                                                                                                                                                                                                                                                    CTGGGCCGCGGCCTGGTGCGGCTGGGGCAGGCCGTCGAGAGGGGGCGACGAGGAGACGTTC
                                                                                                                                                                                                                                                                                                                                                                                 CTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCGGTCGGCGACGACCGCGACCGTGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                               AGTGCCCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCCGGGCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGCTGGCCTTCGGGCTGGGGCCTGGGGGGGTGGAGCGTGGGGGGCGCTGCGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGCCCGGTGTGCCGGGCCCTCGTGGAGCTGGTGGCCGGGTGGGGGGGCCCCGGGTGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGTTCGCCCCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGATCGCCGGGCCTGCGTGAGGCCGCCGGGGCTGCAGGCGGTGGGGCTGAACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCCGTGACCCGGCTCATGCGGCCGGGGCGCTGCTCGCCGACACCCTGTCCGTTCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGGCGGCGGACGTGGTGGTGGCGGCGGTGCCGGAGCCGGTGGCGTGGGAGGCGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGGACGCGGACCTCGTCCTCGCCGTCGCCGTACACGGCGAGGACGTGGCCCTCAAGGCCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGGGTGCGGGTGGCCGGTGATGTGCGGCGGCCGGGGCCGGAGGCGGTCGCGGCGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cceeaceccrecrieereeeceacercacceceeeceeeceaaacreeeeeceeceecee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ricesecernerecreciesecesecesecesersesecesecesecentericasecacies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCCCCCGCAGCGTCGTCGTCGCGGCGCAGCAGCGGCGGCATGTT---CGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGGTGCGTTCGGGGGTGGCGGTGACCTGGCTGGACGTGGCCGGGGCCGGTGCGGCGGAC
For Preparing Same
                                                                                                                                                                                                                                                                                     844
                                                                                                                                                                                                                                                                                                                     832
Ву
```

678

726

666 819 909 558

798 786 738 546

486

438 426 378 366 318 306 258 246 198 186

498

밁 Ś 밁 Ş 밁 Ś 밁 Ś 밁 S 밁 δ 밁 δ 밁 S 멍 Ś 용

```
멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                         र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 र्
   밁
                                                     Ś
                                                                                                                   밁
                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-765-907A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Simi
Matches 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 1
LENGTH: 2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
ORGANISM: Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OF INVENTION: Mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1818
   1038
                                                                                                                      1098
                                                                                                                                                                                                                                          1158
                                                                                                                                                                                                                                                                                                                                                                1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    127
                                                                                                                                                                                                                                                                                                  667
                                                                                                                                                                                                                                                                                                                                                                                                                        607
                                                           787
                                                                                                                                                                              727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGCTGGCCTTCGGGCTGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGGCGCTGCGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         crecrerecineses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGCCGGGCGTCACGGCCTGCTGCTGCCGCTCGAGGGCGGCGGCGGCGGCAGGCCCCTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGTTCGCCCCCTCGCTGGGTCTTCAGGGGCGGCCGGTGGCGGGGGGTGGTGGTCACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGTTCGCCCCCGCCGCCGCGATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGATCGCCGGGCTGCGTGAGGCGGCGCCGGGGCTGCAGGCGGTGGGGCTGAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCATGGCCGGGAGCTCGCGGCCCCACGCCCCGGCGTCCAGCACGTGGGCCTCAACCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGCTGGCGGGGTGATGCGGCCCGGTGCGGTGCTCGCGGACACCTTGTCGGTCAAGAGC 1519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCGTGACCCGGCTCATGCGGCCGGCGGCGCTCCCTCGCCGACACCCCTGTCCGGTCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGGCGGCGGACGTGGTGGTGCTGGCGGTGCCCGGAGCCGGTGGCGTGGGAGGCGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGGGTGCGGGTGGCCGGTGATGTGCGGCGGCCGGGGCCGGAGGCGGTCGCGGCGCTG 1639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCCGCCCTC 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGTGCGTTCGGGGGTGACCTGGCTGGACGTGGCCGGGGCCGGTGCGGCGGAC 1699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGCCCTGTTCGCCGAACTGCGCGGGGGTGTGCTGGGCGAGCACGGCG 993
                                                                                                                                                                                                                                                                                                                                                             AGTGCCCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCCGGCGGGACG 1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGCCGGCGCGGCACGACGAGCTGACCGCCGCGCAGCAGGCCGCCACGCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGCCCGGTGTGCGGGCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGCCCCGGGTGGTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCGGGACGG
                                                           GCCCCGGGCGCGCGACGCCCCCGGCCATCCCGGGGGATGCGACG 832
                                                                                                                      CTGGGCCGCGGCCTGGTGCGGCTGGGGCAGGCCGTCGAGAGGGGGCGACGAGGAGACGTTC
                                                                                                                                                                        circio de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la c
                                                                                                                                                                                                                                                                                                  ACGGCACCGCCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27.9%;
58.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 270.8; DB 3;
Pred. No. 8.3e-34;
0; Mismatches 337;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2888;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
••
                                                                                                                                                                                                                                          1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          246
```

```
δ
                                                                                                  뭐
                                                                                                                                                     á
                                                                                                                                                                                             В
                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-987-614A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-987-614A-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Si
Matches 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Patent No.
GENERAL INF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Application Patent No. 6833382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOPTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins
TITLE OF INVENTION: Mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: BLANC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 2888
TYPE: DNA
ORGANISM: Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
1278
                                                                                                                                                                                                                1398
                                                                                                                                                                                                                                                                                                                         1458
                                                                                                                                                                                                                                                                                                                                                                                                                                    1518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1818
                                             547
                                                                                                                                                                                                                                                                   427
                                                                                                                                                                                                                                                                                                                                                                            367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10
                                                                                                                                                                                                                                                  GGGCCGGGCGTCACGGCCTGCTGCGGCGGCTCGAGGGCGGCGGCGGCGGCAGGCCCCTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .GGCATGGCCGGGGGCCCAAGCCCCGGGGGTCCAAGCACGTGGGCCTCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGGTGCGGGTGATGTGCGGCGGCGGGCCGGAGGCGGTCGCGGCGCTG
GTGCTGGCCTTCGGGCCTGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGGCGCTGCGGGAC
                                                                                                                                                                                                                                                                                                                                                        ATGTTCGCCCCCGCCGCCGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGATCGCCGGGCGCTGAGGCGGCGGCGGGGCTGCAGGCGGGGGGGCTGAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGCTGGCGGGGGTGATGCCGCCCGGTGCCGCTCGCCGGACACCTTGTCGGTCAAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGCCCGAACTCGCGGCCCCTC 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   crecrerectivesecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecreteresecretere
                                                                                                                                    GGGCCCGGTGTGCGGGCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGGCCCCGGGTGGAG
                                                                                                                                                                                                                                                                                                                         ceeeaceceeaccreercerecreeceracaceaeaacereeccrcaaeecereece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGTGCGTTCGGGGGTGGCCGGTGACCTGGCTGGACGTGGCCGGGGCCGGTGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cTecTeceGeAeeceGeCAeceCAeecTeeTeeTeeAeeTeeTAeeceCeeceGeGAeeG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTCGGGCGTTGTGTGGTGGGGCGGGGGCCGGTGGGGCCGCATGTTCAGCCACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BLANCHE, Francis
COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BAMAS-JACQUES,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THIBAUT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Veronique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Denis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US/09987614A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pristinaespiralis:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nathalie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 270.8; DB 4
Pred. No. 8.3e-34;
0; Mismatches 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                And Method
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                For
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2888;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Вy
  1219
                                                                                                                                                                                                                1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1699
                                                  606
                                                                                                        1279
                                                                                                                                                              546
                                                                                                                                                                                                                                                                      486
                                                                                                                                                                                                                                                                                                                            1399
                                                                                                                                                                                                                                                                                                                                                                              426
                                                                                                                                                                                                                                                                                                                                                                                                                                    1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126
```

```
RESULT 5
US-08-804-227C-7/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 7, Application Patent No. 5876991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Coheff, Bradley S.
APPLICANT: Kuhstoss, Stuart A.
APPLICANT: Rosteck, Paul R., Jr.
APPLICANT: Sutton, Kimberly L.
TITLE OF INVENTION: POLYKETIDE SYNTHASE GENES
                                                                                                                                                                                                                                                                                                        TELECOMMUNICATION INFORMATION:
TELEPHONE: 317-276-2459
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ZIP: 46285
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM Compatible
COMPUTER: KYSTEM: MS_DOS
FEATURE:
NAME/KEY:
LOCATION:
                                                                                                                                                      LOCATION:
FEATURE:
NAME/KEY:
                                                            FEATURE:
NAME/KEY:
                                                                                                      FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: Plant, Thomas, G.
REGISTRATION NUMBER: 35,784
REFERENCE/DOCKET NUMBER: X-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OPERATING SYSTEM: MS-DOSOFTWARE: ASCI(DOS) TECOURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSES: THOWAS G. PLANT 1501
STREET: LILLY CORPORATE CENTER
                                                                                                                                                                                                                                MOLECULE TYPE:
                                                                                                                                                                                                                                                          LENGTH: 44377 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/08/804,227C FILING DATE: February 21, 1997 CLASSIFICATION: 435
                                            LOCATION:
                                                                                        LOCATION:
                                                                                                                                                                                                  NAME/KEY:
                                                                                                                                                                                                                                             TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                      LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INDIANAPOLIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGTGCCCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCGGATCGCCGGGGGACG 1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGGCACCGCCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCCGGGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGGGCCGGCCTGGTGCGGCTGGGGCAGGCCGTCGAGAGGGGGGACGAGGAGGACGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGGAGGTGTATTTCGACATCCAGGCCGCCCAACCCCGGCGCGCCGCCGCCGCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
CDS
36155..41830
                                            CDS
31329.
                                                                                                        CDS
                                                                                                                                                                                  350..14002
                                                                                                                                                                                                                                               linear
                                                                                                                                    14046..20036
                                                                                          20110..31284
                                                                                                                                                                                                                               DNA (genomic)
                                             .36071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/08804227C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Text only
                                                                                                                                                                                                                                                                                                                                                                       X-8231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        666
```

```
뮍
                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-804-227C-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 438;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29253 GACGGGGGGGAGCAGCCGGTGGTCGGCCACGCACAGCGGGCCCAGGCCGCCGTCCCACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29430 CACCTCCGCGC---CGAGGTGGCGGGCGATCTGCACCGCGGCCATGCCGACGCCCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                436 GTCACGGCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22 GTCGTCGTCGGCGGCAGCGGGGGGGGGGGGCATGTTCGCCGGGGTGCTGCGGGAGGCG
GCAGGCCACGGTGTGCGCGTCGGCGGCGACGTCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCTCGGCGTCCGGGGCGCGCCACCAGGGCGAGGCCGTCGAGGGTGAGGTCGGTGCCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGGCGCCTCCGTTCCCATCTCCGCCTCGCCCGGGTACATGCCGAGGGCGATGAGGGC
                                                                                                                                        GCGGGCGCCGTCCGGGCCCTCCGGGGCCGCGAGCCGGCGCTGGACGAGGTCCAGCACCCG
                                                                                                                                                                                      TTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGGCCCAGGACCACTGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCGAGGGCGTCGGTCAGCGCCCGGGCGGACGCCGGGTCGTCCAGGTCCACGAGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCGGGCTCGCCTCGCCTCGGCGTCGACGTCCGGCCCTGGCCGCCGACGCCAC
                                                                  GAGCTGTTCCGCACCCTCCACCGCACCGACGACGAAGG
                                                                                                                                                                                                                                                                       CGCGCCGACGCCCCGGCCATCCCGGGGGATGCGACGGCGCCGGGAACCTCGACGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                            eccineceirocurice cieceiros en consequencias en consequen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCGCTCCAGCCGGGCACGTACACCGTCCCGGCCCGGACCGCGGTCTGCGGTTCGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCGCGGAAGTTGACGCCCGCGGCGCGCGTACGGCGACGCGCACCTGGCCGGGCTCCAGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGAGCACGCGGTCGCCGACGGCGACACCCGGTGACGCCGGGGCCGACCTCGACGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCATGCGGCCGGGCGCTGCTCGCCGACACCCTGTCCGGACGGGACGGGCATGGC---C 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTAGGCGCTGAGGAÀCACCGCGGGGACCGAGGCGGCCTGGGCGTAGGACCAGCCGTCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         erccrecrececarycy---ceaeeaccrececccaraeeccerecececcareaecce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGGCGACGTCACCGCGCCGGGGGCCCGAACTCGCGGCCGCCCTCCGGGACGCGGACCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCGTCGGTGATGCCCATGGCGCGCAGGGCGTCCCACTTGCCGGGGGCTCGCGGTGGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 104.4; DB 2;
Pred. No. 2.9e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
28556
                                                                  953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       615
                                                                                                                                                                                                    915
                                                                                                                                                                                                                                                                                                                                         855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29014
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29431
```

RESULT 6 US-08-804-198-1/c

```
Ś
                          밁
                                                    ફ
                                                                                  밁
                                                                                                         ई
                                                                                                                                        밁
                                                                                                                                                                 5
                                                                                                                                                                                                                                                        US-08-804-198-1
                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1, Patent No.
                                                                                                                                                                                                Matches 438;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEPHONE: 317-276-3885
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: Microsoft Word 5.1
CURRENT APPLICATION DATA:
APPLICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER: 36,470
REFERENCE/DOCKET NUMBER: P9
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Kuhstoss, Stuart A.
APPLICANT: Rao, Nagaraja R.
APPLICANT: Richardson, Mark A.
APPLICANT: Rosteck, Paul R., Jr.
TITLE OF INVENTION: PLATENOLIDE SYNTHASE GENE
NUMBER OF SEQUENCES: 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                  FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION: NAME: CANTRELL, PAUL R.
                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: Macinto
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH: 44377 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                     LOCATION:
                                                                                                                                                                                                                                                                                                              LOCATION:
                                                                                                                                                                                                                                                                                                                             NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                       LOCATION:
                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION:
                                                                                  29430
                                                                                                                                           29490
 202
                                                                                                              82
                                                                                                                                                                    46285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , Application 5945320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INDIANAPOLIS
 GTCCTGCTCGCCGTACA---CGAGGACGTGGCCCTCAAGGCCGTGGCCCCGTGACCCGG
                                                                                  CACCTCCGCGC---CGAGGTGGCGGGCGATCTGCACCGCGGCCATGCCGACGCCCCCGGC 29374
                                                                                                            GTCGTCGGTGATGCCCATGGCGCGCAGGGCGTCCCACTTGCCGGGGGCTCGCGGTGGCCAG
                                                      ĠTĠĠĠĊĠĂĊĠŦĊĂĊĊĠĊĠĠĠĠĊĊĠĠĠĊĊĠAĂĊŢĊĠĠĠĊĊĠĊĊŢĊĊĠĠĠĂĊĠĊĠĠĂĊĊŢĊ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B: PAUL R. CANTRELL I
LILLY CORPORATE CENTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Macintosh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Burgett, Stanley
                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                             CDS
31329..36071
                                                                                                                                                                                                                                                                                                                                                                                                CDS
14046..20036
                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
350..14002
                                                                                                                                                                                                                                                                    36155..41830
                                                                                                                                                                                                                                                                                                                                                                     Sg
                                                                                                                                                                                                                                                                                                                                                       20110..31284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA (genomic)
                                                                                                                                                                                                            10.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08804198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/08/804,198
                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ∌ ດ
                                                                                                                                                                                                            Score 104.4; DB 2
Pred. No. 2.9e-08;
                                                                                                                                                                                                Mismatches 491;
                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                          Length 44377;
                                                                                                                                                                                                Indels
                                                                                                                                                                                               9;
                                                                                                                                                                                                Gaps
                                                      201
                                                                                                                                                                      81
                                                                                                                                          29431
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                        S
                                                                                                        밁
                                                                                                                              S
                                                                                                                                                                  밁
                                                                                                                                                                                               S
                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                             밁
                                                                                                                                                                                                                              뭉
RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29073
                                             28593 GCAGGCCACGGTGTGCGCGTCGGCGGCGACGTCGCCGG 28556
                                                                                                                                                                                                                              28773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29313 GTAGGCGCTGAGGAACACCGCGGGGGGACCGAGGCGGCCTAGGCGTAGGACCAGCCGTCCGG
                                                                                                                                                                    28713
                                                                                                                                                                                                                                                                                                                                                     28893
                                                                                                                                                                                                                                                                                                                                                                                                                 28953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29013 CGCCTCGGCGTCCGGGGCGCGCACCAGGGCGAGGCCGTCGAGGGTGAGGTCGGTGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29133 GCCGGCGCCCTCCGTTCCCATCTCCGCCTCGCCCGGGTACATGCCGAGGGCGATGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29253 GACGGGGGCGAGCAGCCGGTGGTCGGCCACGCACAGCGGCCCAGGCCGCCGCCGTCCCACAG 29194
                                                                                                                                                                                                                                                                                                                                                                                   616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          316
                                                                                                                                                                                                                                                            736
                                                                                                                                                                                                                                                                                                                       556 TTCGGGCTCGCCTCGCCCTCGGCGTCGACGTCCGGGCCCTGGCCGCCGACGGCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    436 GTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCAGGCCCGTACGGCTCACGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGAGCACGCGGTCGCCGACGGCGACACCGGTGACGCCGGGGCCGACCTCGACGACGGT 29134
                                                                                                        GGCGAGGGCGTCGGTCAGCGCCCGGGCGGACGCCGGGTCGTCCAGGTCCACGAGCAG 28774
                                                                                                                                                                                                                                                                                                                                                                                                                 GTCGCGGAAGTTGACGCCCGCGGCGCGTACGGCGACGCGCACCTGGCCGGGCTCCAGCGG
                                                                          GAGCTGTTCCGCACCCTCCACCGCACCGACGAAGG
                                                                                                                                    TTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGGGGGCCAGGACCACTGCCAG
                                                                                                                                                                    CGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGGACGGCGCGGGAACCTCGACGGCGTC
                                                                                                                                                                                                                              GCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACCGACCGTGCCGACGCCCCCGGG
                                                                                                                                                                                                                                                                                                                                                     CCGCTCCAGCCGGGCACGTACACCGTCCCGGCCCGGACCGGGTCTGCGGGTTCGCCGGA 2883
                                                                                                                                                                                                                                                                                                                                                                                   CCGCCCCACCAGGTGCTGCTCGCCCTCCTGGCCGTGTGCTCGGCGGCAGCCCCGAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCGTGGGCCTCAACCCGATGTTCGCC 375
                                                                           953
                                                                                                                                                                                                                                                                                                                                                                                    675
                                                                                                                                                                                                                                                                                                                                                                                                                                                615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2907
                                                                                                                                       915
                                                                                                                                                                                                                                                              795
                                                                                                                                                                                                                                                                                                                        735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 435
                                                                                                                                                                                                                                 28714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29014
```

US-09-105-537-30

(Sequence 30, Application US/09105537A

Patent No. 6265202

(GENERAL INFORMATION:
APPLICANT: Sherman, D.H.
APPLICANT: Liu, H.
APPLICANT: Liu, H.
APPLICANT: Liu, H.
APPLICANT: ALO, L.
TITLE OF INVENTION: DNA encoding methymycin and FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/105,537Å
CURRENT FILLING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
SOFTMARE: FASTSEQ for Windows Version 3.0
SEQ ID NO 30
LENGTH: 13842
TYPE: DNA
ORGANISM: Streptomyces venezuelae
US-09-105-537-30

pikromycin

```
RESULT 8
US-09-105-537-5
                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                               밁
                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
Sequence 5, Application Patent No. 6265202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12579
                                                                                                                                                                                                                                                                                                                                                                                                                                          12939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12639
                                                                                                                                                                                                                                             13059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  h 10.7%;
Similarity 45.1%;
25; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCGGCGCTCGCCCGGAGGGCACGGTCCTGCTGACCGGCGGCACCGGCGGCCTGGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTCGGCTGGGGCCTCTGGGCCGAGACCAGCGGCATGACCGGCGAGCTCGGCCAGGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCCGCGTTCCTCCACGAACTCACCTCGACGCCCCGCATACGACCTGGCAGCGTTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCCCCCCCGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGGGCGCGCTGCTCGCCGACACCCTGTCCGGACGGGCATGGCCGGAGCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGACGTCACCGCGGGGCCCGAACTCGCGGGCCCCTCCGGGACGCGGACCTCGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCACCCTCCACCGCACCGACGACGAAGGCCGAGAAGGACCGA
                                                                                                                                                                                                                                             CGTCGTCGGCGCCAGGACCGTCCGGGCCCGGCCTCCGGCCTCGACGACAGC
                                                                                                                                                                                                                                                                                        стссессеестсятеевассеваестсесеесеессавахскостессавеасстеттс
                                                                                                                                                                                                                                                                                                                                                                                        cccceeccarcce--eeeeareceacecceceeaaccrceacecerrrrcceeeeaa
                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTCGACGCCGCCCTCCGCGACGACGCCACCCGGTCCTGCCCCCTGCGGCTCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cTTCGCCGCGCTGGTCGGCGACGACCGGGACCGTGCCGACGCCCCCGGGCGCGCCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTGCGCCGGATGAGCCGCGGGGCATCGGCGGGATCAGCGACGCCGAGGGCATCGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CTTCGCCCGCCTCGGCGTCGACGGTCCGGCGGCCGCCCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGGACGACGGCCACCCAGGCCCTGACGCACGCGTGCTCCTCTCCTTCGGGCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCGGAGGAGCACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCACCCTCCCGTCCATGACGACGACGACGTGGAACACGTACTGCGGCCCAAGGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCATCCCCGCGAACACCCCGCTCACCGCGGTCGTCCACACGCCAGGCGTCCTCTCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGACGTCTCGGTGGCCGCGACGTCGCCGACCGCGAAGCCCTCACCGCCGTACTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGGGGCACGGACGCCCCGGGCGCCGACGACGTGCACGAGCTGGAGGCCCTGGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGACCCGGCTCATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGGACGGCACGCCGGGGACGGCGGACGCCGCGGCGGA
                                                                                                                                                                                                                                                                                                                                          CGCCGGGCTGCGGGACGCCGGGAACGACCCGGCCGGAATCCCGGCGCTCTTCCGGGA
                         US/09105537A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 104; DB 3; Length 13842;
Pred. No. 3.7e-08;
0; Mismatches 515; Indels 2
                                                                                                                                                                                             966
                                                                                                                                               13160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12458
                                                                                                                                                                                                                                                                                                                                          13058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12398
                                                                                                                                                                                                                                                                                          924
                                                                                                                                                                                                                                                                                                                                                                                                                                        12998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Sherman, D.H.
APPLICANT: Liu, H.
APPLICANT: Xue, Y.
APPLICANT: Zhao, L.
TITLE OF INVENTION: DNA encoding methymycin and FILE REFERENCE: 600.438US1
CURRENT APPLICATION NUMBER: US/09/105,537A
CURRENT FILING DATE: 1998-06-26
NUMBER OF SEQ ID NOS: 43
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 5
LENGTH: 36778
TYPE: DNA
                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TYPE: DNA ; ORGANISM: Streptomyces venezuelae US-09-105-537-5
                                                       δ
                                                                                                       문
                                                                                                                                                         Ş
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 10.7%;
Best Local Similarity 45.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 425;
                                                                                                                                                                                                                                                                                                                   14500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14080
                                                                                                                                                                                                                                                                                                                                                                                                                 14440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14020 ACCGGCGCTCGCCCCGGAGGGCACGGTCCTGCTGACCGGCGGCACCGGCGGCCTGGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87 ccecacecrcerceaccrceracceccecceesacescescesaceccreccreeres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27 CGTCGGCGGCAGCGGGGCGGCGGCATGTTCGCCGGGCTGCTGCGGGAGGCGGGCAG
                                                                    CTTCGCCGCGCTGGTCGGCGACGACCGGGACCGTGCCGACGCCCCCGGGCGCGCCGACGC
                                                                                                                                                                                                                 CCTCGGCTGGGGCCTCTGGGCCGAGACCAGCCGGCATGACCGGCGAGCTCGGCCAGGCGGA 14619
                                                                                                                                                                                                                                                                 GGTGCTGCTCGCCCTCGTGGCCCGTGTGCTCGGCGGCAGCCCCGAGGTGTACGGGGACAT
                                                                                                                                                                                                                                                                                                              CAACGCCACCCTCGACGCCTCGCCTGGCGCCGGGCAGCCGGGACTCCCCGCCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGGACGACGGCGACCCAGGCCCTGACGCACGCCGTGCTCCTCTCCTTCGGGCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCGGAGGAGCACGA 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGCACCCTCCCGTCCATGACGACGGAGGACGTGGAACACGTACTGCGGCCCCAAGGTCGA 14379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCACGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCCATCCCGGCGAACACCCGCTCACCGCGGTCGTCCACACGGCAGGCGTCCTCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      eecceaceccecceceses a second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGACGTCTCGGTGGCCGCGTGCGACGTCGCCGACCGCGAAGCCCTCACCGCCGTACTCGA 14255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGGGGCACGGACGCCCCGGGCGCCGACGACGTGCACGAGCTGGAGGCCCTGGGAGC 14199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCCGTGACCCCGGCTCATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACTGGTCGCCCGGCACGTGGTGGGCGAGTGGGGCGTACGACGCCTGCTGCTGGTGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGACGTCACCGCGGGGGCCCGAACTCGCGGCCCCTCCGGGACGCGGACCTCGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGACGGCACCATCAGGCTGGCCCGCCTGGCCTCCGTCCGGCCCGAGACCGGCACCGCCGC
                      CCTCGACGCCGCCTCCGCGACGACCGCCACCCGGTCCTGCCCCTGCGGCTCGACGC 1473
                                                                                                                    CCTGCGCCGGATGAGCCGCGCGCGCGCATCGGCGGATCAGCGACGCCGAGGGCATCGCGCT
                                                                                                                                                                 CCTCGCCCCCCCGCCTCGACGTCCGGGCCCTGGCGCGACGGCACCGCCCCCCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                 CATGTTCTCCTCCGCCGCCGCCGTCTTCGGTGGCGCGGGGCAGGGCGCCTACGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGCGTTCCTCCACGAACTCACCTCGACGCCCGCATACGACCTGGCAGCGTTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches 515;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 104; DB 3;
Pred. No. 3.4e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and pikromycin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 36778;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                    14679
                                                                                                                                                                                                                                                                   989
                                                                                                                                                                                                                                                                                                                                                                   626
                                                                                                                                                                                                                                                                                                                                                                                                                 14499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   86
                                                                                                                                                                    746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.
```

```
TITLE OF INVENTION: RECOMBINANT NARBONOLIDE POLYKETIDE SYNTHASE
FILE REFERENCE: 300622002120
CURRENT APPLICATION UNMBER: US/09/320,878A
CURRENT FILING DATE: 1999-05-27
EARLIER FILING DATE: 1999-05-27
EARLIER FILING DATE: 1998-08-28
EARLIER FILING DATE: 1998-08-28
EARLIER APPLICATION NUMBER: CIP OF 09/073,538
EARLIER APPLICATION NUMBER: CIP OF 09/073,538
EARLIER APPLICATION NUMBER: CIP OF 08/846,247
EARLIER FILING DATE: 1998-09-20
EARLIER FILING DATE: 1997-04-30
EARLIER FILING DATE: 1997-04-30
EARLIER FILING DATE: 1999-02-08
EARLIER APPLICATION NUMBER: 60/100,880
EARLIER APPLICATION NUMBER: 60/00-880
EARLIER APPLICATION NUMBER: 60/00-880
                                                                                                                  밁
                                                                                                                                                                                       ર્
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-09-320-878-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 9
US-09-320-878-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                    ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 19
LENGTH: 38506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 19, Applicate Patent No. 6117659 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: ASHLEY, Gary APPLICANT: BETLACH, Melanie APPLICANT: BETLACH, Mary C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EARLIER APPLICATION NUMBER: 60/087,080
EARLIER FILING DATE: 198-05-28
NUMBER OF SEO ID NOS: 34
SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: McDANIEL, Robert APPLICANT: TANG, Li
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                      12342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14740
                                                                                                                                                                                                                                                                                                                                                          207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                807
                                            327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27
ACTGGTCGCCCGGCACGTGGTGGGCGAGTGGGGCGTACGACGCCTGCTGCTGGTGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccecacecrostice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGACGGCACCATCAGGCTGGCCCGGGCCTCGGTCCGGCCCGAGACCGGCACCGCCGC 12161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGACGTCACCGCGCGGGGCCCGAACTCGCGGCCCCTCCGGGACGCGGACCTCGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTCGGCGGCAGCGGGCGGCGCATGTTCGCCGGGCTGCTGCGGGAGGCGGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGCACCCTCCACCGCACCGACGAAGGCGAGAAGGACCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCCGCCGGCTCATGGGACCGGAGCTCGCGGCCGGCCAGGACCACTGCCAGGAGCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGGGCGCGCTGCTCGCCGACACCCTGTCCGTCCGGACGGGCATGGCCGCGGAGCTCGC 326
                                                                                                                                                                                                                                                                            GCGGGGCACGGACGCCCCGGGCGCCGACGACGTGCACGAGCTGGAGGCCCTGGGAGC 12341
                                                                                                                                                                                                                                                                                                                                                      GCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCCGTGACCCCGGCTCATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGGGACGGCGCACGCCGGGGGGACGGCGGCGCGGCGGA 14901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGTCGTCGGCGCCAGGACCGTCCGGGCCCGGCCGTCCGGCCTCCGCCTCGACGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCCGGCCATCCCG--GGGGATGCGACGCCGCGCGAACCTCGACGGCGTCTTCGGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US/09320878A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ဂ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 104; DB 3;
Pred. No. 3.3e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches 515;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 38506;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                      266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       146
                                                                                                                                                                                                                                                                                                                                                                                                                                   12281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      924
                                                                                                                  12401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14799
; TYPE: DNA
; ORGANISM: Streptomyces venezuelae
US-09-141-908-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
US-09-141-908-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                  NUMBER OF SEQ ID NOS: 31
SOFTWARE: PatentIn Ver.
SEQ ID NO 1
LENGTH: 38506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/09141908 Patent No. 6503741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: ASHLEY, Gary
APPLICANT: BETLACH, Melanie C.
APPLICANT: BETLACH, Melanie C.
APPLICANT: MCDANIEL, Robert
APPLICANT: TANG, Li
TITLE OF INVENTION: Combinatorial Polyketide Libraries Produced
TITLE OF INVENTION: Modular PKS Gene Cluster as Scaffold
TILE REFERENCE: 300622002100
                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/141,908
CURRENT FILING DATE: 1998-08-28
EARLIER APPLICATION NUMBER: CIP OF 09/073,538
EARLIER FILING DATE: 1998-05-06
EARLIER APPLICATION NUMBER: CIP OF 08/846,247
EARLIER FILING DATE: 1997-04-30
EARLIER APPLICATION NUMBER: PROV. 60/076,919
EARLIER APPLICATION NUMBER: PROV. 60/076,919
EARLIER FILING DATE: 1998-03-05
                                                                                                                                                                                                                                                                    EARLIER APPLICATION NUMBER: PROV. EARLIER FILING DATE: 1998-05-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12702 CCTCGGCTGGGGCCTCTGGGCCGAGACCAGCGGCATGACCGGCGAGCTCGGCCAGGCGGA 1276:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12582 CATGTTCTCCTCCGCCGCCGCCGTCTTCGGTGGCGCGGGGGCAGGGCGCCTACGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12402 CGCCATCCCCGCCGAACACCCGCTCACCGCGGTCGTCCACACGCGCAGGCGTCCTCTCCGA 12461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                807 CCCCGGCCATCCCG--GGGGATGCGACGGCGCCGGGAACCTCGACGGCGTCTTCGGGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGGACGGCCGGCACGCCGGGGGACGGCGGCGCGGCGGA 13043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCACCCTCCACCGCACCGACGACGAAGGCGAGAAGGACCGA 966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGTCGTCGGCGCCAGGACCGTCCGGGCCCGGCCGTCCGGCCTCCGCCTCGACGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGCCAGGACCACTGCCAGGAGCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCTCGACGCCGCCCTCCGCGACGACGCCCACCCGGTCCTGCTGCCCCTGCGGCTCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       czrzececececececenteczrzecececececececececececzrzececececececececececzrzececececececececececzrzececececececececzrzececececececececzrzececececececececzrzececececececececzrzecececececececzrzecececececececzrzececececececececzrzecececececececzrzecececececececzrzececececececzrzececececececzrzececececececzrzecececececzrzecececececzrzecececececzrzecececececzrzecececececzrzececececzrzecececececzrzececececzrzececececzrzececececzrzececececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecececzrzecece</li
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCTGCGCCGGATGAGCCGCGGGGCATCGGCGGGATCAGCGACGCCGAGGGCATCGCGCT 12821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGCGCGGGCCCTCGCGAGGCCCTGCGCTC 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAACGCCACCCTCGACGCCTCGCCTGGCGCGCCGGGCAGCCGGACTCCCCGCCCTCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTCGCCCTCGGCGTCGACGTCCGGCGGCGCGCGACGGCACCGCCACCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cceéaceaceaceácicacicaececicas en acesta en contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCCGCGTTCCTCGACGAACTCACCTCGACGCCCGCATACGACCTGGCAGCGTTCGT 12581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCGGAGGAGCACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGCACCCTCCCGTCCATGACGACGAGGACGTGGAACACGTACTGCGGCCCAAGGTCGA 12521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGTCACGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTGCTGCTCCTCGCCCGTGTGCTCGGCGGCAGCCCCGAGGTGTACGGGGACAT
                                                                                                                                                                                                                                                                                                                 60/087,080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Using
```

864

12941

12881

686

12701

626

12641

```
RESULT 11
US-09-657-440-19
                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                뭥
                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 425; Conserv
        Sequence 19, Application
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTCGCCCGCCTCGGCGTCGACGTCCGGGCCCTGGCGGCGACGGCACCGCCGCCCCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGACGTCACCGCGCGCGGGCCCGAACTCGCGGCCCCTCCGGGACGCGGACCTCGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGGACGGCACGCCGGGGACGGCGGACGGCGCGGA 13043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTCGACGCCGCCCCCCGACGACCCCGGTCCTGCCGCCTGCGGCTCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             crrceccecercerceaceaceaceaceaecerecceaececceceececeaecec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTCGGCTGGGGCCTCTGGGCCGAGACCAGCGGCATGACCGGCGAGCTCGGCCAGGCGGA 1276:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GETGCTGCTCGCCTGGCCCGTGTGCTCGGCGGCAGCCCCGAGGTGTACGGGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATGTTCTCCTCCGCCGCCGCCGTCTTCGGTGGCGCGGGGCAGGGCGCCTACGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCCGCGTTCCTCGACGAACTCACCTCGACGCCCGCATACGACCTGGCAGCGTTCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCACCCTCCCGTCCATGACGACGACGACGTGCAACACGTACTGCGGCCCAAGGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCCATCCCCGCGAACACCCGCTCACCGCGCTCGTCCACACGCCAGGCGTCCTCCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGACGTCTCGGTGGCCGCGACGTCGCCGACCGCGAAGCCCTCACCGCCGTACTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGGGCGCCGACCACCCCTGTCCGTCCGGACGGCATGGCCGCGGAGCTCGC 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGACCCGGCTCATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTGGTCGCCCGGCACGTGGTGGGCGAGTGGGGCGTACGACGCCTGCTGGTGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACGGCACCATCAGGCTGGCCCGGCCTGGCCTCCGGCCCGAGACCGGCACCGCCGC
                                                                                                                                                                                                   CGCACCCTCCACCGCACCGACGACGAAGGCCGAGAAGGACCGA 966
                                                                                                                                                                                                                                                             CGTCGTCGGCGCCAGGACCGTCCGGGCCCGGCCGTCCGGCCTCCGACGACAGC
                                                                                                                                                                                                                                                                                                                  CGCCGGGCTGCGGACGCGGCCGGGAACGACCCGGCCGGAATCCCGGCGCTCTTCCGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                 CCCCGGCCATCCCG--GGGGATGCGACGGCGCCCGGGAACCTCGACGGCGTCTTCGGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGCGCCGGATGAGCCGCGGGGCATCGGCGGGATCAGCGACGCCGAGGGCATCGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ccegaceaceaceaccaccaegeccieaacecaceaceacerecrecrecricity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCAGGCTCACGGCGGAGGAGCACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGTCACGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGGGGCACGGACGCCCCGGGCGCCGACGACGTGCACGAGCTGGAGGCCCTGGGAGC 12341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10.7%;
ilarity 45.1%;
Conservative
        US/09657440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 104; DB 4; Length 38506;
Pred. No. 3.3e-08;
0; Mismatches 515; Indels 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  206
                                                                                                                                                                                                                                                             13003
                                                                                                                                                                                                                                                                                                                     924
                                                                                                                                                                                                                                                                                                                                                                            12941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: RECOMBINANT NARBONOLIDE POLYKETIDE SYNTHASE
FILE REFERENCE: 300622002120
CURRENT APPLICATION NUMBER: U$/09/657,440
CURRENT FILING DATE: 2000-09-07
PRIOR APPLICATION NUMBER: 09/320,878
PRIOR FILING DATE: 1999-05-27
PRIOR APPLICATION NUMBER: CIP OF 09/141,908
PRIOR FILING DATE: 1998-08-28
PRIOR FILING DATE: 1998-08-28
PRIOR FILING DATE: 1998-08-28
PRIOR FILING DATE: 1998-08-28
INUMBER OF SEQ ID NOS: 34
SOPTWARE: Patentin Ver. 2.0
SEQ ID NO 19
LENGTH: 38506
TYPE: DNA
ORGANISM: Streptomyces venezuelae
US-09-657-440-19
                                                                                                                                   S
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                    밁
                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Patent No. 6509455
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: ASHLEY, Gary
APPLICANT: BETLACH, Melanie
APPLICANT: BETLACH, Mary C.
APPLICANT: MCDANIEL, Robert
APPLICANT: TANG, Li
                                                                                                                                                                                                                                                                                                                  12582
                                                                                       12702 CCTCGGCTGGGGCCTCTGGGCCGAGACCAGCGGCATGACCGGCGAGCTCGGCCAGGCGGA 1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12402 CGCCATCCCCGCCAACACCCCGCTCACCGCGGTCCTCCACACGCCAGGCGTCCTCCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12162 ACCGGCGCTCGCCCCGGAGGGCACGGTCCTGCTGACCGGCGGCACCGGCGGCCTGGGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                327
                                   687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      425;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27 cercescecaces es cercesce de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya del companya del companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya del companya de la companya del companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya del companya de la companya de la companya de la companya del companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya d
CCAGCGGTCCAACCCCCGGGGGGGGGTCCGCGGGGGGCGTCGCGAGGCCCTGCGCTC 746
                                                                                                                                                                                                                                                                                                                  CATGTTCTCCTCCGCCGCCGCCGTCTTCGGTGGCGCGGGGCAGGGCGCCTACGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACGTCACCGCGCGGGGCCCGAACTCGCGGCCCCCCCCGGGACCGGACCTCGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGACGTCTCGGTGGCCGCGTGCGACGTCGCCGACCGCGAAGCCCTCACCGCCGTACTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGGGCGCGCTGCTCGCCGACACCCCTGTCCGTCCGGACGGGCATGGCCGCGGAGCTCGC 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGACCCGGCTCATGCG
                                                                                                                                         GGTGCTGCTCGCCCTGGCCCGTGTGCTCGGCGCAGCCCCGAGGTGTACGGGGACAT
                                                                                                                                                                                                   CAACGCCACCCTCGACGCCTCGCCTGGCGCCGCCGGGCAGCCGGGACTCCCCGCCCTCTC
                                                                                                                                                                                                                                      CCTCGCCCGCCTCGACGTCGACGTCCGGGCGCCCCGCCGCCGCCCACCA
                                                                                                                                                                                                                                                                                                                                                                   ccegaceaceacegecaccaegecereacecacecacerecrecrecrecrices
                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCGCGTTCCTCGACGAACTCACCTCGACGCCCGCATACGACCTGGCAGCGTTCGT 1258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ecreceecricerceaeeeceeceeceecaeecceraceecricaceeceeaeeaecaecae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGCACCCTCCCGTCCATGACGACGAGGACGTGGAACACGTACTGCGGCCCAAGGTCGA 1252:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCACGGCCT 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGGGGCACGGACGCCCCGGGCGCCGACGAGCTCGTGCACGAGCTGGAGGCCCTGGGAGC 1234:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTGGTCGCCCGGCACGTGGGGGCGAGTGGGGCGTACGACGCCTGCTGCTGGTGAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ccecacecricerceaccriceraccecceccecaceccecaceccricerree
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 104; DB 4; Length 38506; Pred. No. 3.3e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      515;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 86
```

```
RESULT 12
US-10-237-551-193
; Sequence 193, Application US/10237551
; Patent No. 6821519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ई
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                      8
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
S
                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; TYPE: DNA
; ORGANISM: HSV2
US-10-237-551-193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Day, Craig H.
APPLICANT: Hosken, Nancy A.
APPLICANT: Hosken, Nancy A.
APPLICANT: Barsons, Joseph M.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE DIAGNOSIS AND
TITLE OF INVENTION: TREATMENT OF HERPES SIMPLEX VIRUS INFECTION
FILE REFERENCE: 210121.538C3
CURRENT APPLICATION NUMBER: US/10/237,551
CURRENT FILING DATE: 2002-09-06
NUMBER OF SEQ ID NOS: 254
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 193
LENGTH: 3957
TWO TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO THE TOTAL TO 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity 46.9
Matches 439; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12882
                                                                2053
                                                                                                                                                                                                 1993
                                                                                                                                                                                                                                                                                                                           1933
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1753 GCGGTGCCCGCCGCCTACGGCGCCCCCGCGGGGGCCCCTGGGGGCGCCTGAGCGCC
                                                                                                                                                                                                                                                                 307
                                                                                                                                                                                                                                                                                                                                                                                              247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         127
   427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67 CTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCGGGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7 GGCTTCCCCCGCAGCGTCGTCGTCGGCGGCAGCGGCAGCGGTGGGCGGCATGTTCGCCGGG
GGGCCGGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGG
                                                            CCGCACGCCGACGCCCCGCCTGCGCGCCTGCGCGAGCTGCGGTTCGTGCGCGAC
                                                                                                                                                                                                                                                       GGCATGGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                           CCCGTGACCCGGCTCATGCGGCCGGGCGCGCCGCTCGCCGACACCCTGTCCGGTCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGGACGCGGACCTCGTCCTGCTCGCCGTACACGACGACGTCGCCCTCAAGGCCGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCGCCGCCGCCCCCGTTGCCGTCGGCGGCGCGCTCGCCGGC--CGACGAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGTCGTCGGCCAGGACCGTCCGGGCCCGGCCGCCTCCGCCTCGACGACAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCCGGGCTGCGGGACGCCGGGAACGACCCCGGCCGGAATCCCCGGCGCTCTTCCGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCCGGCCATCCCG--GGGGATGCGACGGCGCCCGGGAACCTCGACGGCGTCTTCGGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTCGACGCCGCCTCCGCGACGACCGCCACCCGGTCCTGCTGCCCCTGCGGCTCGACGC
                                                                                                                         ATGTTCGCCCCCCCCCCCCCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC
                                                                                                                                                                                             CGCGGGATCCTGGAGGCGCTGGCGGAGGGCTTCGACGGCGACCTGGCGGCCGTGCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGCACCCTCCACCGCACCGACGACGAAGGCCGAGAAGGACCGA 966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGCCAGGACCACTGCCAGGAGCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTCGCCGCGCTGGTCGGCGACGACCGGGACCGTGCCGACGCCCCCGGGCGCCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTGCGCCGGATGAGCCGCGCGCGGGCATCGCGGGATCAGCGACGCCGAGGGCATCGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGGACGGCCGGCACGCCGGGGACGCGCGCGCGGA 13043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>;</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 102.6; DB 4
Pred. No. 6.8e-08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches 484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 3957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels 16;
                                                                                                                                                                                                                                                                                                                           1992
                                                            2112
                                                                                                                                                                                                 2052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12881
486
                                                                                                                                                                                                                                                          366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12821
```

```
Ś
                    S
                                                      밁
                                                                                                                            밁
                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-827-688-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                     US-09-827-688-8
                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn version 3.0 SEQ ID NO 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 8, Application Patent No. 6821955
                                                                                                                                                                                                Matches 439;
                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: ORSON, FRANK
APPLICANT: KINSEY, BERMA
APPLICANT: HOGAL, BALBIR
APPLICANT: BHOGAL, BALBIR
TITLE OF INVENTION: MACROAGGREGATED PROTEIN CONJUGATES AS ORAL GENETIC IMMUNIZATION
TITLE OF INVENTION: AGENTS
FILE REFERENCE: PO1949US1/10004014
CURRENT APPLICATION NUMBER: US/09/827,688
CURRENT FILING DATE: 2001-04-06
PRIOR APPLICATION NUMBER: 60/195,680
PRIOR APPLICATION DATE: 2000-04-07
NUMBER OF SEQ ID NOS: 13
                                                                                                                                                                                                                                                                                    LENGTH: 154746
TYPE: DNA
ORGANISM: HERPESVIRUS
                                                      151462 GCGGTGCCCGCCGGCTACGGCGCGCGGGGGTGCTCGCCGCCCTGGGGCGCCTGAGCGCC 151521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2173 GTGGCCGCCGTGCGCCGTGAGCCTGGTCGCCGGGGCCCTGGGCCCGGCGCTGCCGCGG
                     127
                                                                                                                                                               7
ccgacgccrgcrggrggcgacgrcaccgcgcgcgggcccgaacrcgcggccgccccc 186
                                                                                                                          GCCCGCCGCCGCCGCCCCGTTGCCGTCGGCGGCGCGTCGCCGGC--CGACGAGCGC 151461
                                                                                       GGCTTCCCCCGCAGCGTCGTCGGCGGCGGCAGCGGGGCGGTGGGCGGCATGTTCGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGGGGCCCAGCCCACACGCCGCCGCCCCTCGGCCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGCTGACCCGCCGGCCGCCGAGGGCCCCGACCCGCAGGGCGGCTGGCGCCGCCAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGCCGGGAACCTCGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGACCGTGCCGACGCCCCGGGCGCGGCCGACGCCCCGGCCATCCCGGGGGATGCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGCGCTCGC-----CGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCGCGCGCGGGAGGCGCAAGCGCCAAGAGCCCCGGCCCGGCCAGGGCGCCGGCCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCGGGGGGGCGTCCGCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCCCGCGCCTGCTGAGCTCCGCCGCCGCCGCCGCGGACCTGCTTCCCAGAACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCCTCTCCTTCGGGCTCGCCCTCGCCCGCCTCGGCGTCGACGTCCGGGCCCTG----G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGCTGGTGCTGATGCGCCTGCGCGGGGGACCTGCGCGTGGCCGGCGGCGGCGAGGCCGCC 2172
                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                              10.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/09827688
                                                                                                                                                                                                              Score 102.6; DB 4;
Pred. No. 4.8e-08;
                                                                                                                                                                                                Mismatches 484;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2631
                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                 Length 154746;
                                                                                                                                                                                              16;
                                                                                                                                                                                              Gaps
                                                                                                                                                               66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      546
```

```
Sequence 8, Application US/09827688
Patent No. 6821955
GENERAL INFORMATION:
APPLICANT: ORSON, FRANK
APPLICANT: KINSEY, BERMA
APPLICANT: BHOGAL, BALBIR
TITLE OF INVENTION: AGENTS
FILE OF INVENTION: AGENTS
FILE REFERENCE: P01949US1/10004014
CURRENT APPLICATION NUMBER: US/09/827,68
CURRENT FILING DATE: 2001-04-06
PRIOR APPLICATION NUMBER: 60/195,680
PRIOR APPLICATION NUMBER: 60/195,680
PRIOR APPLICATION NUMBER: 50/195,680
PRIOR FILING DATE: 2000-04-07
NUMBER OF SEQ ID NOS: 13
SOFTWARE: PATENTIN VETSION 3.0
SEQ ID NO 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 14
US-09-827-688-8/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      152242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      152122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 152062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      152002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            151942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       151882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            151822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       151762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  151642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             151582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  151522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGACCGTGCCGACGCCCCCGGGCGCCGACGCCCCCCGGCCATCCCCGGGGGATGCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCGCGCGCGGGAGGCGCAAGCGCAAGAGCCCCCGGCCAGGGCGAGGGCGCCGGCCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCCCGCGCCTGCTGAGCTCCGCCGCCGCCGCCGCCGCGGACCTGCTCTTCCAGAACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGTTCGCCCCCGCCGCCATGACCGGCCGACCCGTGCCCGTCGTCACCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGGGATCCTGGAGGCGCTGGCGGAGGGCTTCGACGGCGACCTGGCGGCCGTGCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCGTGACCCCGGCTCATGCGGCCGGGCGCGCCGGCCGACACCCCTGTCCCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTGGCGGCGGCGCGCGGAGGCCGGCGTGGCCGTGGAGTGCCTGGCCGCCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGGGGCCCAGCCACACGCCGGCGGCCCTCGGCCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGCTGACCCGCCGGCCCGAGGGCCCCGACCCGCAGGGCGGCTGGCCGCCGCCAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCCGGGAACCTCGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      egacacrocic-----ceaagaccorecercorrocecececrocrocececeaceaceacea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cesceacescacescecececeaecaserscreecececececececers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTCCTCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG----G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGCTGGTGCTGATGCGCCTGCGCGGGGGACCTGCGCGTGGCCGGCGGCGAGGCCGAGCCGCC 151881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCATGGCCGCGGAGCTCGCGGCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGGGACGCGGACCTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROTEIN CONJUGATES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ΑS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORAL GENETIC IMMUNIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      152301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      152121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            152061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            151941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       151821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  151761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       151701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  151641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        151581
                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; LENGTH: 154746
; TYPE: DNA
; ORGANISM: HERPESVIRUS
US-09-827-688-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 10.6%;
Best Local Similarity 46.8%;
Matches 439; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129800 AGCCCGCGCCTGAGCTCCGCCGCCGCCGCCGCGGACCTGCTCTTCCAGAACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130280 GCGGTGCCCGCCGGCTACGGCGCCGCGGGGGTGCTCGCCCCTGGGGGCGCCTGAGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7 eecrrccccececacercercescecacecaececececececarerrccccee
                                                                                                                                                                CGGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCC
                                                                                                                                                                                                                                                                                                                                                                     GCGCCGGGAACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGACCGTGCCGACGCCCCCGGGCGCCGACGCCATCCCGGGGGATGCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                egecectroscomos estados                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGGCCGCCGTGAGCCTGGTCGCCGGGGCCCTGGGCCCCGGCGCTGCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCTGGTGCTGATGCGCCTGCGCGGGGACCTGCGCGTGGCCGGCGGCAGCGAGGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            egeccegecercacegccriecrecegcricerceaegecegecegcegcaegcccctaceg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGTTCGCCCCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCATGGCCGCGGAGCTCGCGGCCCCCCGGCGTCCAGCACGTGGGCCTCAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCGGGATCCTGGAGGCGCTGGCGGAGGGCTTCGACGGCGACCTGGCGGCCGTGCCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cccereaccecerentes en a receptado en construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcción de construcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGGACGCGGACCTCGTCCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ccesacecciaecorescences es con consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es consequences es 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  crecreceesacecescacecacecrecrecercercerceracecececes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCGCCGCCGCCGCCCCGTTGCCGTCGGCGGCGTCGCCGGC--CGACGAGCGC
                                                                                                                                                                                                                                                                          GCGCTGACCCGCCGGCCCGAGGGCCCCGACCCGCAGGGCGGCTGGCGCCGCCAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     crecrereries en crecreres en conceses en c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 102.6; DB 4;
Pred. No. 4.8e-08;
0; Mismatches 484;
                                                                                                                                                                     931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 154746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 က်
                                                                                                                                                                                                                                                                                                                                                                                892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                129621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           129681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 129741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            129981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130281
```

```
APPLICANT: WHITE, Owen R.

APPLICANT: FLEISCHMAN, Robert D.

APPLICANT: FRASER, Claire M.

APPLICANT: FRASER, Claire M.

APPLICANT: FRASER, John C.

TITLE OF INVENTION: DNA SEQUENCES FOR STRAIN ITILE OF INVENTION: TUBERCULOSIS

FILE REFERENCE: 24366-20007.00

CURRENT APPLICATION NUMBER: US/09/103,840A

CURRENT FILING DATE: 1998-06-24

NUMBER OF SEQ ID NOS: 2

SOFTWARE: Patentin Ver. 2.1

SEQ ID NO 1

LENGTH: 4411529

TYPE: DNA

ORGANISM: Mycobacterium tuberculosis

OTHER INFORMATION: H37RV

US-09-103-840A-1
                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
           ঠ
                                                                                                                    밁
                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 15
US-09-103-840A-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 10.4%; Score 100.4; DB 3; Best Local Similarity 45.3%; Pred. No. 7.7e-08; Matches 405; Conservative 0; Mismatches 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1, Application US/09103840A Patent No. 6294328 GENERAL INFORMATION:
                                                                                                                    3933786 CCGCCTTGGCCGCCTTGGCCGCCGCCACCCTGGCCGCCGTTGAAATTGTTGTCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3934023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3934143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3934203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3934263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3934383 TGGCCGCCTTGGCCGCCGCCACCACCTGGCCGCCGTTGAAATTGTTGTCGCCGGCCCCG 3934324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122 GACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCGGGGCCCGAACTCGCGGCCCG 181
662 GCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGGAGCCGACGCCCAGGGTTCCCGCACCACCGGCGCCCCTTTGCCGCCGGTGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TACGGCTCACGGCGGAGGAGCACGACGGACGGCGGCCACCCAGGCCCTGACGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCCCGCCGAAGCCGCCACCACCAGAGCCCGCATCGCCGCCGCCCCCCCGCCGGTGCCG 3933904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCCATCGCCGCCGTCACCGCCGCCGCCGCCGCCGCCGCCGCCGCCGCCTTACCCGCG 3933964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGACGGGCATGGCCGGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCGCCGACCCCGCCGTTGTCGCCGAGACCTGCGGCACCGGTTGCGCCGTCCCCGCCGTCG 3934144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGTCAGGCCGACGCCGCGTTGCCGCCGTTGCCGGCGCGCCACCGGCCCACCGTCA 3934204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ccesecrecreceseaescesecaescesecrecresresresresresresresresces 121
                                                                                                                                                                                                                             CCGTTGCCGCCGGCGCCGTTGGCGTTGATCG---AGGTGGTGCTTGCCCCGCCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                     escacces eccescione de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra del la contra del la contra del la contra del la contra del la contra de la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCCGCCTTGGCCGCCTTGGCCGCCGTCAAAGCCGGAAGAGGCCCAGGCCGAGACACCGCTG 3934024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccrrcaeeacececical contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                reascescrireccececasecercercercescescescescescescescescescererres
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FOR STRAIN ANALYSIS IN MYCOBACTERIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 4411529;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
           721
                                                                                                                    3933727
                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                            3933787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3933844
```

Search completed: October 5, 2005, 10:06:57 Job time: 195.767 secs

(Uspio) Anole Blank (Uspio)

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        October 4, 2005, 20:50:02; Search time 951.313 Seconds (without alignments) 7033.027 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7442561 segs, 3452328358 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 atgagcggcttcccccgcag.....aaggcgagaaggaccgatga 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Published Applications_NA:*

1: /cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*
2: /cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*
3: /cgn2_6/ptodata/1/pubpna/US06_NEW_PUB.seq:*
4: /cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
5: /cgn2_6/ptodata/1/pubpna/US07_NEW_PUB.seq:*
6: /cgn2_6/ptodata/1/pubpna/PCTUS_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GenCore version 5.1.6
Copyright (c) 1993 - 2005 Compugen Ltd.
/ Cgnn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
/ Cgnn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
/ Cgnn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
/ Cgnn2_6/ptodata/1/pubpna/US09A_PUBCOMB.seq:*
/ Cgnn2_6/ptodata/1/pubpna/US09B_PUBCOMB.seq:*
/ Cgnn2_6/ptodata/1/pubpna/US09NEW_PUB.seq:*
/ Cgnn2_6/ptodata/1/pubpna/US09NEW_PUB.seq:*
/ Cgnn2_6/ptodata/1/pubpna/US10B_PUBCOMB.seq:*
/ Cgnn2_6/ptodata/1/pubpna/US10NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14885122
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIE

7	თ	S	C 4	ų	N	_	Result No.
109.2	114.8	115.6	115.8	913.8	915.4	969	Score
11.3	11.8	11.9	12.0	94.3	94.5	100.0	Query
4569	65140	125401	138203	12391	3305	969	Query Match Length DB ID
15		19				20	B
US-10-156-761-7339	US-10-203-295-1	US-10-203-295-35	US-10-819-386A-1	US-10-126-927-67	US-10-126-927-68	US-10-472-587-5	Length DB ID
Sequence 7339, Ap	Sequence 1, Appli	Sequence 35, Appl	Sequence 1, Appli	Sequence 67, Appl	Sequence 68, Appl	Sequence 5, Appli	Description

	οο			იი ი ი
33 33 33 34 44 30 30 30 30 30 30 30 30 30 30 30 30 30		22 2 2 2 2 2 2 2 2 2 2 4 4 4 6 6 2 4 4 6 6 6 6	15 16 18 19	8 9 10 11 12 13
101.4 101.4 101.4 101.4 101.4 100.4 100.4	102.6 102.6 102.6 102.6 101.8	104 104 104 104 104 104 104	105.2 104 104 104 104	109.2 108.6 107.4 107 107 106.2 106.2
10.5 10.5 10.5 10.5 10.5 10.5	10.6 10.6 10.5	10.7	10.9 10.7 10.7 10.7	11.3 11.2 11.0 11.0 11.0
5802 5802 5802 15738 61944 109519 2700 88421	3957 3957 154746 154746 3024 1839	36778 36778 36778 36778 36778 37948 38506 38506 38506 38506 38506	1167 13842 13842 13842 13842 13842	9025608 1884 969 1707 9025608 3305 12391
	10 10 11 11		16 U	15 15 20 15 15 14
US-10-152-886-84 US-11-053-576-84 US-11-053-052-84 US-10-329-079-46 US-10-329-079-34 US-09-758-759-1 US-09-76-059-1 US-10-156-761-3788	US-10-237-551-193 US-10-945-050-193 US-09-827-688-8 US-09-827-688-8 US-10-939-036-35 US-09-758-759-150	2846-5 846-5 -821-5 -889-48 -384B-5 -708-19 -365-1 -523-19 -523-19	US-10-156-761-6049 US-09-861-289-30 US-09-868-346-30 US-09-988-3848-30 US-09-836-821-30 US-09-871-889-30	US-10-156-761-1 US-10-156-761-3440 US-10-472-587-5 US-10-156-761-4723 US-10-156-761-1 US-10-126-927-68 US-10-126-927-67
84, 84, 86, 34, 1, Ap 1, Ap 3,788	Sequence 193, App Sequence 193, App Sequence 8, Appli Sequence 8, Appli Sequence 35, Appl Sequence 150, App	5, App 19, App	90, 1 30, 1 30, 1 8 30, 8 8 30, 8	Sequence 1, Appli Sequence 3440, Ap Sequence 5, Appli Sequence 4723, Ap Sequence 1, Appli Sequence 68, Appl Sequence 67, Appl

ALIGNMENTS

RESULT 1 US-10-472-587-5

Ş

밁 S 뭥 δ

```
RESULT 2
US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                    961
                                                                                      961
                                                                                                                                   901
                                                                                                                                                                901
                                                                                                                                                                                               841
                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                         721
                                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                           781
                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        969;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ь
                                                                                                                                                                                              AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGCGGC
                                                                                        GACCGATGA 969
                                                                                                                                                  CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGACGAAGGCGAAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGGCGACGGCACCGCCCCCACCAGGTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGTGCTCCTCCTTCGGGCTCGCCCTCGCCCGCCTCGGCGTCGACGTCCGGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGGGACGGGCCGGGCGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTCCGGGACCTCGTCCTGCTCGTCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGAGCGGCTTCCCCCGCAGCGTCGTCGTCGGCGGCAGCGGGGCGGTGGGCGGCATGTTC
                                                                      GACCGATGA
                                                                                                                                                                                                                                                            GCCGACGCCCCCGGGCGCCGACGCCCCCCGGCCATCCCCGGGGGATGCGACGGCGCCCGGG
                                                                                                                                                                                                                                                                                                                           CGGGCGCTCGCCAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCCGGACCGT
                                                                                                                                                                                                                                                                                                                                                 GCCGTGCTCCTCTCCGGGCTCGCCCTCGCCCCCCGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AACCCGATGTTCGCCCCCCGCCGGCCGGCACCGGCCGACCCGTGGCCGTCGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGACGGGCATGGCCGGGAGCTCGCGGCCCACGCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGACGGGCATGGCCGCGGAGCTCGCGGCCCCACGCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGCGCCCGTGACCCGGCTCATGCGGCCGGGCGCGCGCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCCTCCGGGACGCGGACCTCGTCCTCGCCGTACACGACGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGACGGCCGGACGCCTGGCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGGGCTGCTGCGGAGGCCGGCAGCCACGCTCGTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGAAGGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                          GGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGGACGGCCGGCCGTCACGGCCCTGCTGCGGCCGAGGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AACCCGATGTTCGCCCCCCCCCCGCCGGCATGACCGGCCGACCCGTGGCCGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                  960
                                                                                                                                                                                              900
                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                            840
                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                        720
                                                                                                                                                                                                                                                                                                                                                                                                                                                        660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                                                           780
                                                                                                                                                                                                                                                                                                                                                                                          720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 68, Application US/10126927
Publication No. US20030082575A1
GENERAL INFORMATION:
APPLICANT: The Scripps Research Institute
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Magliery, John C
APPLICANT: Magliery, Thomas
APPLICANT: Meggers, Eric L
APPLICANT: Meglery, Thomas
APPLICANT: Mestrak, Miro
APPLICANT: Mentoro, Stephen W
APPLICANT: Santoro, Stephen W
APPLICANT: Destrak, Miro
APPLICANT: Santoro, Stephen W
APPLICANT: Santoro, Stephen W
APPLICANT: Destrak, Miro
APPLICANT: Destrak, Miro
APPLICANT: Santoro, Stephen W
APPLICANT: Destrak, Miro
APPLICANT: Destrak, Miro
APPLICANT: OF INVENTION IN VIVO Incorporation of
FILE REFERENCE: 54-000120US
CURRENT FILING DATE: 2002-04-19
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR APPLICANTON NUMBER: US 60/355,514
PRIOR APPLICANTON NUMBER: US 60/355,514
PRIOR FILING DATE: 2002-02-06
NUMBER OF SEQ ID NOS: 79
SOPTWARE: PatentIn version 3.1
ENGTH: 3305
                                                                       δ
                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                               문
                                                                                                                                       δ
                                                                                                                                                                             밁
                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: DNA
; ORGANISM: Streptomyces
US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches 953;
                                                                                                                 2427
                                                                                                                                                                                                                                             2307
                                                                                                                                                                                                                                                                                                                                                                          2187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2007
                                                                                                                                                                             2367
                                                                                                                                                                                                                                                                                                          2247
                                                                                                                                                                                                                                                                                                                                                                                                                                       2127
                                                                                                                                                                                                             361
                  541
                                                                                                                                             421
                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 GCCGGGCTGCCGGGAGGCGGGCAGCCCGCACGCTCGTCGACCTCGTACCGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGTGCTCCTCCTTCGGGCTCGCCCTCGCCCGCCTCGGCGTCGACGTCCGGGCCCTG
                                                                  AACCCGATGTTCGCCCCCGCCGGCCGGCATGACCGGCCGACCCGTGGCCGTCGTCACC
                                                                                                                                                                                                                                                                                                          GTGGCGCCGTGACCCGGCTCATGCGACCGGGCGCGCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                              GTGGCGCCCGTGACCCCGGCTCATGCCGGCCGGGCGCGCTGCTTGCCGACACACCCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                      GCCTCCGGGACGCGGACCTCGTCCTGCTCGTCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                            GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                      GACGGCCGACGCCTGCTGGTGGGCGACGTCACCGCGCCGGGGGCCCGAGCTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGAGCGGCTTCCCCCGGAGCGTCGTCGTCGGCGGCAGCGGAGCGGTGGGCGGCATGTTC
                                                  GTACGGCTCACGGCGGAGGAGCACGACGGACGACGGCGACCCAGGCCCTGACGCAC
                                                                                                               AGGGACGGGCCGGCGTCACGGCCCCTGCTGCGGCTCGAGGGCGGCGGCGGCAGGCCC
                                                                                                                              AGGACGGGCCGGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCGGCAGGCCC
                                                                                                                                                                             CGGACGGGCATGGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                               CGGACGGGCATGGCCGCGGAGCTCGCGGCCCCACGCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94.5%;
ilarity 96.6%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 915.4; DB 14; Length Pred. No. 3e-181; O; Mismatches 16; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of Unnatural Amino Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                              540
                  600
                                                  2546
                                                                                                               2486
                                                                                                                                               480
                                                                                                                                                                             2426
                                                                                                                                                                                                                                           2366
                                                                                                                                                                                                                                                                                                          2306
                                                                                                                                                                                                                                                                                                                                                                        2246
                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                       2186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2066
                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.
```

Ş 밁 Ş S 밁 Ś 멍 Ś 밁

밁

В Ş

δ

Ş 멍 Ş

밁

Ś 밁 Ś В Ś 밁 Ś 밁 Ś 밁

밁

```
APPLICANT: Meggers, Eric L
APPLICANT: Mehl, Ryan A
APPLICANT: Mehl, Ryan A
APPLICANT: Sancoro, Stephen W
APPLICANT: Zhang, Zhiwen
ITITLE OF INVENTION: In Vivo Incorporation of Unnatural Ami:
FILE REFERRICE: 54-00120US
CURRENT APPLICATION NUMBER: US/10/126,927
CURRENT FILING DATE: 2002-04-19
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR FILING DATE: 2002-02-06
NUMBER OF SEQ ID NOS: 79
SOFTWARE: PatentIn version 3.1
SEQ ID NOS: 79
LENGTH: 12391
   ঠ
                            밁
                                                  ঠ
                                                                                                                           ; ORGANISM: Plasmid US-10-126-927-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 3
US-10-126-927-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       무
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: The Scripps Research In
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
APPLICANT: Anderson, John C
APPLICANT: Chin, Jason
APPLICANT: Liu, David R
APPLICANT: Magliery, Thomas
                                                                           Query Match
Best Local Similarity
Matches 952; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 67, Application US/10126927 Publication No. US20030082575A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                            2361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
     61
                                                    ب
                                       Anderson, John C
Chin, Jason
Liu, David R
Magliery, Thomas
Meggers, Eric L
Mehl, Ryan A
   GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACGACGAAGGCGAGAAGGACCGATGA 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGGAGCTCGCGGCCGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATGCGACGGCGCCGGGAACCTCCATGGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GACCCGGACCGTGCCGACGCCCCCGGGCGCCGACGCCCCCCCGGCCATCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGGCGCTCGCCGCTCCTTCGCCGCTGATCGGCGACCCGGACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGTCCGCCGC
                            ATGAGTGGCTTCCCCCGGAGCGTCGTCGTCGGCGGCAGCGGAGCGGTGGGCGGCATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACGACGAAGGCGAGAAGGACCGATGA 2993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGGAGCTCGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGATGCGACGGCGGGAACCTCGACGGCGTCTTCGAGGAACTCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGGCGACGGCACCGCCCACCAGGTGCTCGCCCCCCCGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGTGATCCTCTCCGTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                           Conservative
                                                                                                                                       pSC101,
                                                                                      94.3%;
                                                                                                                                     Streptomycese venezuelae papABC
                                                                          0;
                                                                          Score 913.8; DB 14;
Pred. No. 4.3e-181;
0; Mismatches 17; 1
                                                                          Indels 18;
                                                                                                   Length
                                                                                                                                                                                                                                                                                                    Amino
                                                                                                                                                                                                                                                                                                    Acids
                                                                          Gaps
                            2420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               660
   120
                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2606
                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                      RESULT 4
US-10-819-386A-1/c
                                                                                                                                                          Ś
                                                                                                                                                                                      밁
                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
Sequence 1, Application US/10819386A
Publication No. US20050089884A1
GENERAL INFORMATION:
APPLICANT: Korea advanced Institute of Science
APPLICANT: Shanghai Jiaotong University
APPLICANT: LEE, Sang Yup
APPLICANT: DENG, ZIXIN
                                                                                                                                                                                        3261
                                                                                                                                                                                                                                                                                                                                      3081
                                                                                                                                                                                                                                                                                                                                                                                       3021
                                                                                                                                                                                                                                                                                       3141
                                                                                                                                                                                                                                                                                                                                                                                                                                        2961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2421
                                                                                                                                                              943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                               721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                    GACGACGAAGGCGAGAAGGACCGATGA 969
                                                                                                                                                                                        CCGGAGCTCGCGGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACC
                                                                                                                                                                                                   CCGGAGCTCGCGGCGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCCTCCACCGCACC
                                                                                                                                                                                                                                                    CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGATCGGCGACGACCCGGACCGG
                                                                                                                                                                                                                                                                                                                                                          GGCAGCCCCGAGGTGTACGGGGGACATCCAG¢GGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGCGACGGCACCGCCCCACCAGGTGCTCGCCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCGACGGCACCGCCCCACCAGGTGCTGCCCCCCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                eccenecrocrocrocesecroeccoroeccroeccroesecroesecroeseccore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTACGGCTCACGGCGGAGGAGCACGACGGACGACGGCGACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTACGGCTCACGGCGGAGGAGCACGACCGGÁCGACCGCGGCCACCCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGGGACGGGCCGGCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGTCGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGACGGGCATGGCCGCGGAGCTCGCGGCCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CGGACGGGCATGGCCGCGAGGCTCCAGGCCCCCCGGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGGCGCCCGTGACCCGGCTCATGCGACCGGGCGCGCCTGCTCGCCGACACCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          - GACCCGGACCGTGCCGACGCCCCCGGGCGCGCCGACGCCCCCGGCCATCCCGGG
                                                                                                                                     3347
                                       and
                                                                                                                                                                                                                942
                                                                                                                                                                                                                                                                                                                                        3140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2780
                                                                                                                                                                                        3320
                                                                                                                                                                                                                                       3260
                                                                                                                                                                                                                                                                                       3200
                                                                                                                                                                                                                                                                                                                                                                                       3080
                                                                                                                                                                                                                                                                                                                                                                                                                                        3020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2480
                                                                                                                                                                                                                                                                                                                                                                                                                720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                               768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
```

```
á
                                                                                                                                   밁
                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; ORGANISM: Streptomyces sp. FR-008
US-10-819-386A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 436; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn version 3.2
SEQ ID NO 1
LENGTH: 138203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: JEONG, Ki Jun
APPLICANT: ZHOU, XIUFEN
TITLE OF INVENTION: Genes for the Synthesis of FR-008 Polyketides
FILE REFERENCE: PO03-B015
CURRENT APPLICATION NUMBER: US/10/819,386A
CURRENT FILING DATE: 2004-04-06
PRIOR APPLICATION NUMBER: KR10-2003-0074035
PRIOR FILING DATE: 2003-10-23
NUMBER OF SEQ ID NOS: 28
SOFTWARF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                   132234
                                                                                                                                                                                                                                                                                                                                                                                                         132354 CGCCGGACCCGACACGCCGGCCCTGGTGCTCCCCGTCGGCGGCGGCGACCCCGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      132414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   132822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGGACGCCGTCCTCCTCCCCCGTACACGACGACGTGGCCCTCAAGGCCCTGGC
CGGCGAAGGGCCGCTCACCGACCCGGCCGCCGCCGTCTGGGGCCTGGTCCGCTCCGC
                                                            CGTACCCGCCGAGGTCCACGCGAGCACCGCCCGCGTCCTCGGGCACATCCAGCGTTGGCT
                                                                                                                                                                                                                                                                                                                                     GACGGCACCGCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTCCGGCTCGGCGCCTCACCGCCGCCGGGTCACCGTCGGCCCGCTCACCGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCTCCACGGCGCGACGCCCCGAAACCCCCGGCACCGTCGGTCTGCTCGGCCCCGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGCCGGCCGCCGCGTGCTGGAGCGCGACGCCCTCTTCCACCTCGACTGGACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CACCACCGGGCACCCGTCGCCTCGGTCGGCTCCCTCGTGCTGCGCTCCGCCCCCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGCATGGCCGCGGAGCTCGCGGGCCCACGCCCGGCGTCCAGCACGTGGGCCTCAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCATCACC------CCCGCGGGGCGACGACGCCGTCACCCTCACCGTCGCGGA 132595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTGGACGCGGCCTGCACGCCACCGCCCCCCCCCCGCGAGGACGCCCGCGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ecrecreceeaaeceecaececaecercercercercerceraeceeceeceecaece
                                                                                                                               CGCCGAGGACACCCGGGCCGGGGCGCGCGCGCGTCGTCGTCGCCGTCGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTCCTCTCCTTCGGGCTCGCCCTCGCCCCGCCTCGACGTCCACGTCCGGGCCCTGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGGCCGGCGTCACGGCCCTGCTGCGGCGTCGTCGAGGGCGGCGGCGGCAGGCCCGTACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      eccesaceccaeccaeses accesos de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 115.8; DB 21; Length 138203;
Pred. No. 5.1e-16;
0; Mismatches 497; Indels 12; G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      65
132115
                                                                                                                                                                                                                                                                                                                                     665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
                                                                                                                                                                                                                                                                                                                                                                                                         132295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               132355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      132415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132703
```

```
Ş
                                                                                                                             문
                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: DNA
; ORGANISM: Streptomyces noursei ATCC 11455
US-10-203-295-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Strom, Arne Reidar
APPLICANT: Valla, Svein
APPLICANT: Valla, Svein
APPLICANT: Bletta, Havard
APPLICANT: Sletta, Havard
APPLICANT: Sletta, Havard
APPLICANT: Gullikeen, Ole-Martin
TITLE OF INVENTION: Movel genes encoding a nysta-
TITLE OF INVENTION: Manaipulation and utility
FILE REFERENCE: 1181-265
CURRENT APPLICATION NUMBER: US/10/203,295
CURRENT FILING DATE: 2003-05-19
PRIOR APPLICATION NUMBER: PCT/GB 01/00509
PRIOR APPLICATION NUMBER: GB 0002840.7
PRIOR APPLICATION NUMBER: GB 0009786.6
PRIOR FILING DATE: 2000-04-10
PRIOR FILING DATE: 2000-04-10
PRIOR APPLICATION NUMBER: GB 0009387.2
PRIOR APPLICATION NUMBER: GB 0009387.2
S
                                        문
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-203-295-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 35, Applicate Publication No. US200 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 455; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Zotchev, Sergey Borisovich
APPLICANT: Sekurova, Olga Nikalayivn
APPLICANT: Fjaervik, Epsen
APPLICANT: Brautaset, Trygve
APPLICANT: Strom, Arne Reidar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 49
SOFTWARE: PatentIn version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 2000-04-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 125401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      131994 CACCGTGTTCGCCGCCCGGCTCGCCCGGCCCCGACGGCGA 131950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132114 CCAGGCCGAACACCCCCACCGCTTCGGCCTCGACCCTCGACCCCGTCGCCGGGACCGA
                                                                                                                                                                                                                                                                                                                                                                                        28560 TCGCCGCCGCCTCCGAGGGGCTGCCCGCGGACGGCGCCTGGCCCGCCGCCCTCCTCGCCA 28619
                                                                                                                                                                                                                                                                                                     28620 CCCTGGACGAGGCCGGCGTGCACGCGCCCCTGTGGGTGCGTCACCCGCGGCGCGCCGTCGCGG
                                                                                                                                                                                                                                                        146 GCGACGTCACCGCGCGCGCGCCCGAACTCGCGGCCCTCCGGGACGCGGACC---TCG
                                                                                                                                                                                                                                                                                                                                              26 regregecececegececegececegecentrerregecegecegecegecegece
TCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCCCCCGCCG
                                                                                                                                                                   TCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCCCCGTGACCCGGCTCA 262
                                        CGCACGCCGCGGGCTGCTCGCCGCGCGCACCTGGCCGCGCG----CGGGCACCGAGGCCGAGA
                                                                                CCGCGCTGGACCACCCGGACCGCTTCGGCGGCCGACCTGCCCGCCGACACCGACG
                                                                                                                                                                                                                TCGCGGGGGAGGCCCCGACCGCCGTCGGCCAGGCCGCCCTGTGGGGCCTGGGGCCGGGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGGACCCGGAGCTCGCGGCGGGCCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Application US/10203295
No. US20040115762A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nikalayivna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 115.6; DB 19;
Pred. No. 5.8e-16;
0; Mismatches 459;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a nystatin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           polyketide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        125401;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             synthase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                   85
382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                             28799
                                                                                                                                                                                                                                                           202
                                                                                                                                                                                                                2873
                                                                                                                                                                                                                                                                                                     28679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  905
```

```
Sequence 1, Application US/10203295
| Publication No. US20040115762A1
| GENERAL INFORMATION: GENERATION: APPLICANT: Zotchev, Sergey Borisovich APPLICANT: Zotchev, Sergey Borisovich APPLICANT: Sekurova, Olga Nikalayivna APPLICANT: Sekurova, Olga Nikalayivna APPLICANT: Brautaset, Trygve APPLICANT: Strom, Arne Reidar APPLICANT: Strom, Arne Reidar APPLICANT: Ellingsen, Trond Erling APPLICANT: Ellingsen, Trond Erling APPLICANT: Ellingsen, Trond Erling APPLICANT: Sletta, Havard APPLICANT: Gulliksen, Ole-Martin TITLE OF INVENTION: manipulation and utility
| TITLE OF INVENTION: manipulation and utility
| FILE REFERENCE: 1181-265 |
| CURRENT FILING DATE: 2003-05-19 |
| PRIOR REPLICATION NUMBER: US/10/203,295 |
| CURRENT FILING DATE: 2001-02-08 |
| PRIOR REPLICATION NUMBER: GB 0002840.7 |
| PRIOR REPLICATION NUMBER: GB 0008786.6 |
| PRIOR APPLICATION NUMBER: GB 000886.6 |
| PRIOR APPLICATION NUMBER: GB 0009387.2 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIOR FILING DATE: 2000-04-10 |
| PRIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 र्ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-203-295-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCCTCTCCTTCGGGCTCGCCCCGCCTCGGCGTCGACGTCCGGGGCCCTGGCGGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCCTGCTG-------CGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGGGCCGACCTGGTCGGCCGTCCCTCGCCGCGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCGCCGGGCTCTGGGGCGTGCGGCCGGCCGGGCCGCGTCCGGCGCCTACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGCCCTAGGCGCCCCCCCACCGGCCGGCCGCTGGACGCCTTCGTCCTCTTCGGCTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGCCGAGGCCCTGCGCTCCTTCGCCGCGCGCTGGTCGGCGACGACCCGGACCGTGCCGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGCCGCGCTCCTCGACGGACTGCCCGACGACACCCCCGCTCACCGCGGTCGTGTACGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGACCGCCCCGACGGCACCACGACCGCCGGACACCGAGGCCCTGACG---GCCGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGGTGCCACCTGGCTGCCGACCGGCACCGTCCTGGTTGTCGGCGGCACCGGCGCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGAC 945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGCCTTCGCCCGCGCCTGCCGCGACCGCGGCACCCCGGCACTGGCCGTCGCCTGGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCCGGAGCTCGCGGCGGGCCAGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCCCGGGCGCGCCGACGCCCCCGGGCCATCCCGGGGAATGCGACGGCGCGGGAACCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGAGGCCGACGCCCCCGGCACCGCGCGCGAGCTGTCCGCCGCACTCGCCCCCCGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGCCGCGCTCGGCCCCGGATCACCGTCGTCGACCACGACCCCACCGCCCCGGACGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29273
                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                       S
                                                                                                                                 밁
                                                                                                                                                                                  á
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뮹.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; TYPE: DNA
; ORGANISM: Streptomyces noursei ATCC
US-10-203-295-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO
LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20407
            20645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tch 11.8%; al Similarity 46.9%; 449; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27 CETCEGCEGCAGCEGEGCEGTEGEGCEGCATETTCGCCEGGCTGCTGCGGGAGGCGGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65140
                                                 CACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACGACGACGAGGAGGAGGAGAAGGACC 964
                                                                                                                                                                      GACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGCCAGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                CTCGACCTCGCCCCGACACCCGGCCGGCCCGACCCCGAGACCCTGGCCACCGCCCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCACGGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACCGTCGCCGTCCTCGGCCCCGACCCGGACGCCCTCGCCGACACCCCTCCGCGCCACCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGACTCCCTCTTCCACGTCGAGTGGACCCCCGCTCCAGGGCCGCCCCGGGCCCCCGCACCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCCCTGGTCTCCCGCGAGGTCCCCGCCGACGCACCCGGCGCCGCCGGCACCGTCCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGACCCGGCTCATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGAGGACACCGTCACCATCGCCGTCTACGACGCCGCCGGCGCCACCGTGCTGTCCGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGACGTCACCGCGCGGGGCCCGAACTCGCGGGCCCTCCGGGACGCGGACCTCGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ccecacercercerceacercercecececes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cecceccecciaces accices contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra
                                                                                                                                                                                                                                                   GCCCGTGTCCCGCTCGCCACCGAACCCACCACCTGGAACCCGGACGGCACCGTCCTGATC
                                                                                                                                                                                                                                                                                                          écciccéegécecécéveccecécentécéééeevarecévééeéecécéeevaceté
                                                                                                                                                                                                                                                                                                                                                                  GCGGCCGCCGGCCTGATCCGCACCGCCCGCACCGAGAACCCCGGCCGTTTCGCCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GETGCTGCTCGCCTGGCCCGTGTGCTCGG---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGACGCCCGCCTGGTCCTCGTCACCCGCGGC--GCCACCGACGGCACCGACCCGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCACCACCGCCGCCGTCCTCGCCCTCGCCCAACAGTGGCTCGCCGACGACCGCTTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGACCTGGTCGTCACCACCCTCACCACCACCCGGGCGCCCCCGTCCCCGACGCCGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ecreceecricerceaeeeceeceeceecaeececeraceecricaceeceeaeeaecacea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATICCOGACCACCOCCCCCCGCGACCTGGCCGCCCTCGCCGACGCCGAAGGGCCCGTCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGGGCGCGCTCGCCGACACCCTGTCCGTCCGGACGGGCATGGCCGCGGAGCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 114.8; DB 19;
Pred. No. 1e-15;
0; Mismatches 487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
               20822
                                                                                                                                                                                                                                                                                                             846
                                                                                                                                                                                                                                                                                                                                                                                                                            786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19986
                                                                                                                                                                                                                                                                                                                                                                        20644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N
```

```
밁
   S
                                                                            밁
                                                                                                                                             δ
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GRGANISM: Streptomyces avermitilis FEATURE:
NAME/KEY: CDS
LOCATION: (1)..(4569)
US-10-156-761-7339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-156-761-7339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 7339
LENGTH: 4569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 7339, Application US/10156761
Publication No. US20030119018A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: UP 2001-204089
PRIOR FILING DATE: 2001-05-30
PRIOR APPLICATION NUMBER: UP 2001-272697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
                                                                            1960
                                                                                                                                                                                                                              1900
                                                                                                                                                                                                                                                                                                                                                                            1840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1540 GCCGCCGGTCTCGACGAACGCGCGGCGGCGCCGCCGCCGGTGCGGTGCGGCTCGCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1480 ACCGCGCCGACACCCGAGGCGATGGCCGCGCTGCTGGACCGCGACGACTCCGCGATCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1720 AAĞCTCĞCCTTCGTCTTCCCCCGGCCTGGAĞGCCGAĞTTCGTĞCCCAACTCCGAĞGACGTC 1779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               157
                                                                                                                                                                                                                                                                                                   454
                                                                                                                                                                                                                                                                                                                                                                                                                                                 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37 AGCGGGGCGGTGGGCATGTTCGCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                 GECCEACCCETEGCCECCETEGTCACCAGEGACGEGCCEGGCCTCACGGCCCTGCTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ecccceecercosecaces de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGCTCGCCGACACCCTGTCCGTCCGGACGGGCATGGCCGCGG---AGCTCGCGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCGGGGCCGGGGCGACGTGTGGTTCGTGCCGAGCCCGCTGCTGGGGGCCCGGCGGCGGC 1719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACGAGGACGTGGCCCTCAAGGCCGTGGCCCCGTGACCCGGCTCATGCGGCCGGGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCGGGCCCACCGCGAAACGGCTGGCGCTGGCCCCCAAGGCGGTCGCGAAGGGCGACGGG 1659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ececceeeecceeaacreeceecececcecaaceeeaaceceeaaccreerecreeceera 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCTCGGCGTCGACGTCCGGGGCCCTGGCGGCGACGGCACCGACCACCAGGTGCTG
                                                                        GCCGCCGAAATCCACGCACCGGACGAGGTCGACGCCTTCCTCGCCGGCTTCGACCCCGAC
                                                                                                                                                 CTCGGCGTCGCACCCCGACGCGCGGGCGACACAGCCTGGGCGAGTGGACCGCGATGGCC
                                                                                                                                                                                                                                                                                           GGCCGGCAGGGCACCGGCGTCTTCGAACTCGGCCGGCTCCTCGACGCGGCGCTGCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCGGCACTTCGGGCTGCCCTGGTCGCGGGCCGTCGCCGACGCCACCGTGGGCGACGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ISHIKAWA, JUN
HORIKAWA, HIROSHI
SHIBA, TADAYOSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11.3%;
ilarity 45.8%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 109.2; DB 15;
Pred. No. 3.4e-14;
0; Mismatches 488;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 4569;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1539
                                                                                                                                                                                                                                                                                                                                                                        1899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1839
   633
                                                                                                                                                                                                                                                                                                                                                                                                                                             453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96
```

```
Ş
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; NAME/KEY: misc feature ; LOCATION: (4187715) ; OTHER INFORMATION: a, t US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-156-761-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 1, Application US/10156761 Publication No. US20030119018A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: UP 2001-204089
PRIOR FILING DATE: 2001-05-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: JP 2001-272697 PRIOR FILING DATE: 2001-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Streptomyces FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 9025608
                                                                                                                   8781128
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2380 GTCCGC 2385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2080 ACGGAGCTGGCCGGGCGCACGGACGTGGTCCTCTCCCACGACAACGCGCCCAACCAGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2020 GCGCTGAGCGTTCCCGGGCTCGCCTTCGCCGCGATCGGCGCCCCCCGAGCAGCAGGTGCTG
                                          157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            694 TCCAACCCCGGGGCGTCCGCGCGCGCGGGCCTCGCGAGGCCCTGCGCTCCTTCGCC
                                                                                                                                                                                         97
                                                                                                                                                                                                                                                                                                                                           37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NOS: 15109
GCGCCGGGGCCCGAACTCGCGGCCGCCCTCCGGGACGCGGACCTCGTCCTGCCTCGCCGTA 216
                                                                                                               GCCGCCGGTCTCGACGAACGCGCGCCGCCGCCGCCGCCGATCCGGTGCGGCTCGCCGTC
                                                                                                                                                                                                                                                                  ACCGCGCCGACACCCGAGGCGATGGCCGCGCGCTGCTGGACCGCGACGACTCCGCGATCCTC
                                                                                                                                                                                                                                                                                                                                   AGCGGGGCGGCGGCATGTTCGCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACCGC 939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCGGCCCGATCAGAAAGGCGGCCGAGACCTACACCCTCCACCCGGCCGCCGCTGCCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTCGCCCTCCTGGCCGTGTGCTCCGGCGGCAGCCCCGAGGTGTACGGGGACATCCAGCGG
                                                                                                                                                                                 electronic de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la cont
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGTCCGCGACCGTAGCCCCGTACCCGGAGGAACCGGCGGCGATCCGCGACCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCATGGGACCGGAGCTCGCGGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGATCTCGCAGATCCTGCCGTTCCGCTCCGGCTTCCACACCCCCGATGCTGGAGCCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGCTGGTCGGCGACGACCCGGACCGTGCCGACGCCCCCGGGCGCGCCGACGCCCCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATCCCGGGGGATGCGACGGCGGGAACCTCGACGGCGTCTTCGGGGAACTCCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGATCTGCGGCCCGAGCCGCCGTCGCCGCACTCGTCGACGTGTTCCGGTCCCGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ISHIKAWA, JUN
HORIKAWA, HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                               11.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                             <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 109.2; DB 1
Pred. No. 3.3e-15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      other
                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches 488;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9025608;
                                                                                                                                                                                                                                                                                                                                                                                                             ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             813
                                                                                                                                                                                                                                                                                                                                           96
                                                                                                                                                                                                                                                                  8781129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              873
                                                                                                                                                                                                                                                                                                                                                                                                                 ۲.
```

```
RESULT 9
US-10-156-761-3440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           무
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: ISHIKAWA, HIROSHI
APPLICANT: HORIXAWA, HIROSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3440, Application US/10156761 Publication No. US20030119018A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8780828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8780768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8780888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8780948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GICCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGCTCGCCTTCGTCTTCCCCGGCCTGGAGGCCGAGTTCGTGCCCAACTCCGAGGACGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACCGC 939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGATCTCGCAGATCCTGCCGTTCCGCTTCCGGCTTCCACACCCCGATGCTGGAGCCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGATCTGCGGCCCGGAGCCCGCCGTCGCCGCACTCGTCGACGTGTTCCGGGTCCCGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGGAGCTGGCCGGGCGCACGGACGTGGTCCTCTCCCACGACAACGCCCCAACCAGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGCTGAGCGTTCCCGGGCTCGCCTTCGCCGCGATCGGCGCCCCCCCGAGCAGCAGGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGCCGAAATCCACGCACCGGACGACGACGCCTTCCTCGCCGGCTTCGACCCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGGCGGCCACCCAGGCCCTGACGCACGCCGTGCTCCTCCTTCGGGCTCGCCCTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCACGGCCCTGCTGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGCGGGGCCGGGCGACGTGTGGTGCTGCCGAGCCCGCTGCTGGGGGCCCGGCGGCGGC 8780949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTCGGGCCCACCGCGAAACGGCTGGCGCTGGCCCCGCAAGGCGGTCGCGAAGGGCGACGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGTCCGCGACGACCGTAGCCCCGTACCCGGAGGAACCGGCGATCCGCGACCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    crcaregeaccegaecroecegcescongeaccaceaccaceaccaceaccace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCGGCCCGATCAGAAAGGCGGCCGAGACCTACACCCTCCACCCGGCCGCCGCTGCCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATCCCGGGGGATGCGACGGCGCCGGGAACCTCGACGGCGTCTTCGGGGAACTCCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGCTGGTCGGCGACCGCGACCGTGCCGACGCCCCCGGGGCGCCGACGCCCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCCAACCCCGGGCGCGTCCGCGCGCGCGGCGCTCGCCGAGGCCCTGCGCTTCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   croccorrected acceptance of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the crock of the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCGGCGTCGCACCCGACGCGTGGCCGGACACAGCCTGGGCGAGTGGACCGCGATGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTCGTCGAGGGCGGCGGCAGGCCCCGTACGGCTCACGGCGGAGGAGCACGACCGGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCGGCACTTCGGGCTGCCCTGGTCGCGGGCCGTCGCCGACGCCACCGTGGGCGACGTG 8780829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CTGCTCGCCGACACCCTGTCCGTCCGGACGGCCATGGCCGCGCG---AGCTCGCGGCCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGACCCGGCTCATGCGGCCGGGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8780283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8780409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8780529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8780589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8780649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8780709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8780769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8780889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8780289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8780349
                                                               В
                                                                                                                                 Ś
                                                                                                                                                                                                    멼
                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-156-761-3440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 3440
LENGTH: 1884
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 436;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 11.2%;
Best Local Similarity 45.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
NAME/KEY: CDS
LOCATION: (1)..(1884)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Streptomyces
                                                                                                                                                                                                        1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1215
                                                                                                                                                                                                                                                                                                                                         1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1095
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  477
                                                                                                                                                                                                                                                                       717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6
   CGGGAACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGC
                                                                      | GCGCCGGGCGCTCGCCGAGGCCCTGCTCCTTCGCCGCGCTGGTCGGCGACGACCGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCACGCGTGCTCCTCCCTTCGGGCTCGGCCCTCGGCCTCGGCGTCGACGTCCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCGTACGGCTCACGGCGGGGGGGGGCGACGACGACGGCGGCCACCCAGGCCCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCAGGGACGGGCGCGCCCTGCTGCTGCGGCTCGAGGGCGGCGGCGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATGTTCGCCCCCG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGCATGGCCGGGAGCTCGCGGCCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTGGCGGATGTGCAGCCGCTCGCGCGGGACGCCGGCCATGCCACGACGCTCGCGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGGTCGTCGACGGGACGGCCGCCGCCGTTGTGCCGCCGGTCGCCGTGACCGCCGTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCGGGGCCCGAACTCGCGGCCGCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ęcnecnecesaeseseses a eccecace a concercence a concerce de concesa e concerce de concerce 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ceecricecececaecercercesececececececececececarerrececec
                                                                                                                              ccaracteracecccceeececececececccccccaceccarccceeeearacececec
                                                                                                                                                                                                    GGACACGGCGGTCGGCCGTCGGCCCGGTCGTCGACGGCGTCGGCGGCAGCGCCACGGG
                                                                                                                                                                                                                                                                                                                                         CGTGGTCGGCGGTGCGGCCGGTCGTGGACACCGTGACCGGCGCGGTGCGGCCGGTCGT
                                                                                                                                                                                                                                                                                                                                                                                                         CGGCGGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ccreeceaceacecccccccccccaecaecaecrecrecccccccreecccreeccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGCCACCGGGCTCGGCGTCACCGACGAGGTGCAGCCGTTCACGAACGGCGTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCTTCGCGGGCGGGGTCGTCGGCCAGGTTCCGCCCCGCCCAGGGTGTCGGCGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCCGGGCAGGCGGGCCGGACGCGACCGGCCTGGCGTACGGAGTCGTCGGCGACGTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGCGTCACGGGCGACGTGCAGCCGCTGGCCTCGGGCGTGCTCCGGGACGCCGTGCACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGGACGCGGACCTCGTCCTCGCTCGCCGTACACGACGACGTCGCCCTCAAGGCCGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGTCTTCGGCACGGTCGCCGGCGTCCCCGGCACGGTCCAGGGCGTCACCGCGACCGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGCCGTCCCCGGCCACCTCACGGGCACGGTCACGGGGGTCGAGCAGCAGCGGTCGGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 108.6; DB 15;
Pred. No. 5.9e-14;
0; Mismatches 514;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ccecceecarcceacceaccereccereer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
   896
                                                                                                                                                                                                    1634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1034
                                                                  1694
                                                                                                                                 836
                                                                                                                                                                                                                                                                   776
                                                                                                                                                                                                                                                                                                                                         1574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             974
```

á

밁

```
; TYPE: DNA
; ORGANISM: Streptomyces v
; FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)..(966)
US-10-472-587-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 5, Application US/10472587
Publication No. US20040214274A1
GENERAL INFORMATION:
APPLICANT: YANAI, KOji
APPLICANT: SUMIDA, Naomi
APPLICANT: WATANABE, Manabu
APPLICANT: MORIYA, Tatsuki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        გ
                                                             路
                                                                                                                                                                              밁
                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
US-10-472-587-5/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 378; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 5
LENGTH: 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: WATANABE, Manabu
APPLICANT: MORIYA, Tatsuki
APPLICANT: MURKAMI, Takeshi
TITLE OF INVENTION: Transformants Producing Substance PF1022 Derivatives, Methods
TITLE OF INVENTION: Producing The Same And Novel Biosynthesis Genes
FILE REFERENCE: 2003-1302A/MMC/00144
CURRENT APPLICATION NUMBER: US/10/472,587
CURRENT FILING DATE: 2003-09-22
PRIOR APPLICATION NUMBER: 82227/2001
PRIOR FILING DATE: 2001-03-22
RUMBER OF SEQ ID NOS: 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1695
                                                             393
                                                                                                                                                                                                                                                                                                  513
                                                                                                                                                                                                                                                                                                                                                         321
                                                                                                                                                                                                                                                                                                                                                                                                                   573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           691
                                                                                                                    441
                                                                                                                                                                              453
                                                                                                                                                                                                                                     381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCACCTGGTGG--GGCGGCGGTGCCGTCGCCGCCAGGGCCCCGACGTCGACGCCGAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cercercercecaecaecaecaereececaecarerrerrececeecrecrececaecaec
   GCACGACCGGACGACGGCCACCCAGGCCCTGACGCACGCCGTGCTCCTCCTTCCGG
                                                                                                                                                                                                                                     CGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCAC
                                                                                                                                                                                                                                                                                            CGTCCGGTCGTGCTCCTCCGCCGTGAGCCGTACGGGCCTGCCGCCGCCGCCCCTCGACGAG
                                                                                                                                                                                                                                                                                                                                                      GCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCCCCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGCGGCCGGGCCGCTGCTCGCCGACACCCTGTCCGGTCCGGACGGGCATGGCCGCGGA 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCCCCGTGACCCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGGATGTCCCCGTACACCTCGGGGCTGCCGCCGAGCACACGGGCCAGGAGGGCGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGGGGCGTCGGCGCGCCCGGGGGCGTCGGCACGGTCCGGGTCGTCGCCGACCAGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACCGTCGAGTCGGCGGGCGGTCCGCTGGCCGGCCACGCCGTGACCGGCGTCCAGGGCG 1813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGACCCCTTCGCGCGGGGCGTCGTCGGCCAGGTCGGCCGCAGGACCTGACCGG 1754
                                                      GGTCATGCCGGCGGCGGGGGGGAACATCGGGTTGAGGCCCACGTGCTGGACGCCGGGGGC
                                                                                                                 GECCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCGGAGGA 500
                                                                                                                                                                           CCGCAGCAGGGCCGTGACGCCCGGCCCGTCCCTGGTGACCACGGCGGCCACGGGTCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                             GGCGAGGGCGAGCCCGAAGGAGAGGAGCACGGCGTGCGTCAGGGCCTGGGTGGCCGCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGAAGGCG 955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11.18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 107.4; DB 20; Length Pred. No. 1.3e-13; O; Mismatches 411; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        969;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.
                                                                                                                                                                                                                                                                                                                                                      380
                                                                                                                                                                              394
                                                                                                                                                                                                                                                                                            454
                                                                                                                                                                                                                                                                                                                                                                                                                514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ő
                                                                                                                                                                        Ś
                                             Ś
                                                                                                             밁
                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-156-761-4723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-156-761-4723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIKA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 4723, Application US/10156761
Publication No. US20030119018A1
GENERAL INFORMATION:
APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR FILING DATE: 2001-08-0
NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 4723
LENGTH: 1707
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches 342;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: CDS
LOCATION: (1)..(1707)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Streptomyces
1000 GCGGCCACCCTGGAACAGCACGCGGCCTGGGTCGACCGGGGAACCGTCGACCGCCGCGAC 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  561
                                                                                                                 940 GCGGTCCAGGGCGACGGGCTTCTCCGTGATGGGAGAGGCCGCGGTCGCCGGGATGGAC
                                                                                                                                                                                                                                  880 TCCGCGGCGGCGGCCTCGCCCCGCCGGTACCGACGAGGGCTGCCCCCTCGACCTGTCC
                                                                                                                                                                                                                                                                                            298 GTCCGGACGGGCATGGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                          799 GCCGACGCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             679 GGGGACATCCAGCGGTCCAACCCCCGGGCGCGTCCGCGCGGCCGGGCGCTCGCCGAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              621 -- CCACCAGGTGCTCGCCCCCCCCGCGGCCGTGTGCTCGGCGGCAGCCCCGAGGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGGCCGCGACAGGCTCCGCGGCCATGCCCGACGGACAGGGTGTCGGCGAGCAGCGGC
                                                a ca de de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calca de la calc
                                                                                                                                                                        CTCAACCCGATGTTCGCCCCCGCCGCCGCCATGACCGGCCGACCCGTGGCCGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCGGCCGCATGAGCCGGGTCACGGCGCCACGGCCTTGAGGGCCACGTCCTCGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTCGCCTCGCCTCGGCGTCGACGTCCGGGCCCTGGCGGCGACGGCACCGCCGCC
                                                                                                                                                                                                                                                                                                                                                      GCCGACGACGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCGAGCAGGACGAGGTCCGCGTCCCGGAGGGCCGCGAGTTCGGGCCCCCGGCGCGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCCGGACGCCGACGCCCCGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACGTCGCCCACCAGGCAGGCGTCCGGCCGTCCCGGCGGCGGTACGAGGTCGACGACGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2001-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 107; DB 15;
Pred. No. 1.3e-13;
0; Mismatches 365;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1707;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                 999
                                                                                                                                                                                                                                                                                                                                                      879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 678
                                                                                                                                                                           417
                                                                                                                                                                                                                                     939
                                                                                                                                                                                                                                                                                            357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            274
```

Ś

δ

δ

```
; FEATURE:
; AMME/KEY: misc feature
; LOCATION: (4187715)
; OTHER INFORMATION: a, t
US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 12
US-10-156-761-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1, Application US/10156761 Publication No. US20030119018A1 GENERAL INFORMATION:
                                                                         Matches 342;
                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                   SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
CURRENT EPPLICATION UNMEER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
APPLICANT: ISHIKAWA, JUN
APPLICANT: HORIKAWA, HIROSHI
                                                                                                                                                                                                                                                                                                                                                                      CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION NUMBER: JP 2001-204089
PRIOR FILING DATE: 2001-05-30
                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER OF SEQ ID NOS: 15109
                                                                                                                                                                                                                                   TYPE: DNA ORGANISM: Streptomyces avermitilis
                                                                                                                                                                                                                                                                               LENGTH: 9025608
 5778628 GCGGCGGCTCGAGGGGCGTACGGGTACGCCGGTCGCCGTGAGGAGACCCCCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        658
                       238 GCCGTGGCGCCCGTGACCCCGGCTCATGCGGCCGGGCGCCGCTGCTCGCCGACACCCCTGTCC 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCTTCGGCGCCCCAGCGCGCGCGCACATCACCCCCACCGTCGTCGCCCCTGCGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACGCGCCGATGGCCGACGTGGACCTGGTGCGCCGGATCGTCGCCGACGAGGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGCCCGCGCTCGCACTGCTCGACCTCGCGATGCCCCGTGACATCGACGCCGCCGTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGGCGGCGACGGCCGCCCCCACCAGGTGCTGCTCGCCCCTCCTGGCCCGTGTGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCGGCGGCCGTCTCCCCGAGCGCCGCCGGCCCGAGCCCCGTCGTCGAGGCCCCCCGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CACGCCGTGCTCCTCTTCGGGCTCGGCCTCGCCCCGCCTCGGCGTCGACGTCCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCCGCCGCACGCCCGAGGTCGAGGCCGAGCTGATCACCGCGCTCGCCGCCACGGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACGAGAAGCAGCGCGAGATCACCCAGACCGTGCGGCGCGTCGTCGACAA 1526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCCAGGACCACTGCCAGGAGCTGTTCCGCACCTCCACCGCACCGACGACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGAACCTCGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cecceeecerceceaececrecerecerrecerececererreeree
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGTACGGCTCACGGCGGAGGAGGACGACCGGACGGCGACCACCCAGGCCCTGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTGCCGACGCCCCGGGCGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGCTGCTCGGGGTGCGGCTCGTCGACATCGAGTCG-----CTCGCCGAGGCCTCCGCG
                                                                         Conservative
                                                                                          11.0%;
                                                                                                                                                                   <u>,</u>
                                                                                                                                                                   ņ
                                                                                                                                                                 á
                                                                         0;
                                                                     Score 107; DB 15;
Pred. No. 9.5e-15;
0; Mismatches 365;
                                                                                                                                                                   other
                                                                                                                                                                   or unknown
                                                                         365;
                                                                                                          Length 9025608;
                                                                         6
                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1239
 5778687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                657
```

```
Ş
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
밁
                                 á
                                                                         밁
                                                                                                            S
                                                                                                                                                  밁
                                                                                                                                                                                      S
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                           5779102 GACGCGCCGATGGCCGCCGACGTGGACCTGGTGCGCCGATCGTCGCCGACGAGGTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5778868 AGCCGCCGCACGCCCGAGGTCGAGGCCGAGCTGATCACCGCGCCTCGCCGCCACGGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5778748 GCGGTCCAGGGCGCCACGGGCTTCTCCGTGATGGGAGAGGCCGCGGTCGCCGGGATGGAC
5779282 GACGAGAAGCAGCGCGGCGAGATCACCCAGACCGTGCGGCGCGTCGTCGACAA 5779334
                                                                           5779222
                                                                                                                                                                                                                                                                                                        5779048 CGGCTGCTCGGGGTGCGGCTCGTCGACATCGAGTCG-----
                                                                                                                                                                                                                                                                                                                                                                                  5778988 GCGCCCGCGCTCGCACTGCTCGACCTCGCGATGCCCCGTGACATCGACGCCGCCGTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             5778928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5778808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5778688 TCCGCGGCGGCGCCTCGCCCCCGCCGGTACCGACGAGGGCTGCCCCCTCGACCTGTCC
                                                                                                                                                                                                                                                                 718 CGCCGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCCGCTGGTCGGCCGACGACCCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              538 CACGCCGTGCTCCTCCTTCGGGCTCGCCCTCGCCTCGGCGTCGACGTCCGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     418 ACCAGGGACGGGCCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGAACCTCGACGGCGTCTTCGGGGGAACTCCCGCCGGCTCATGGGACCCGGAGCTCGCGGCG
                                                                                                                                                    GCCTTCGGCGCCCCAGCGCGCGCGCGCACATCACCCCCACCGTCGTCGCCCTGCGCACG
                                   GECCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGA 950
                                                                           creeceeceaceacececececaecaecrecreerecreecececereces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGCCACCCTGGAACAGCACGCGGCCTGGGTCGACCGGGGAACCGTCGACCGCCGCGAC
                                                                                                                                                                                      GCCGCCAGCCCCGAGGTGTACCGGGGACATCCCAGCGTCCCAACCCCCGGGCGGCGTCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCCGTACGGCTCACGGCGAGGAGGACGACGACGGACGGCGGCCACCCAGGCCCTGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCAACCCGATGTTCGCCCCCCGCCGCCGCGATGACCGGCCGACCGTGGCCGCCGTGGTC
                                                                                                                                                                                                                                                                                                        CTCGCCGAGGCCTCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                     657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  417
                                                                                                                897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             357
                                                                           5779281
                                                                                                                                                      5779221
                                                                                                                                                                                            837
                                                                                                                                                                                                                                 5779161
                                                                                                                                                                                                                                                                   777
                                                                                                                                                                                                                                                                                                          5779101
                                                                                                                                                                                                                                                                                                                                                                                      5779047
                                                                                                                                                                                                                                                                                                                                                                                                                                                             5778987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5778867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5778747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5778927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5778807
```

WS-10-126-927-68/c

| Sequence 68, Application US/10126927
| Publication No. US20030082575A1
| GENERAL INFORMATION:
| APPLICANT: The Scripps Research Institute
| APPLICANT: The Scripps Research Institute
| APPLICANT: The Scripps Research Institute
| APPLICANT: Mang. Lei
| APPLICANT: Wang, Lei
| APPLICANT: Liu, David R
| APPLICANT: Magliery, Thomas
| APPLICANT: Medgers, Eric L
| APPLICANT: Medjiery, Thomas
| APPLICANT: Mehl, Ryan A
| APPLICANT: Santoro, Stephen W
| APPLICANT: Santoro, Stephen W
| APPLICANT: Pastrnak, Miro
| APPLICANT: Pastrnak, Miro
| APPLICANT: Santoro, Stephen W
| APPLICANT: Pastrnak, Miro
| APPLICANT: Pastrnak, Miro
| APPLICANT: Pastrnak, Miro
| APPLICANT: Santoro, Stephen W
| APPLICANT: Santoro, Stephen W
| APPLICANT: Zonay, Zniwen
| TITLE OF INVENTION: In Vivo Incorporation of Unnatural
| FILE REFERENCE: 54-000120US
| CURRENT FILING DATE: 2002-04-19
| PRIOR APPLICATION NUMBER: US 60/285,030
| PRIOR APPLICATION NUMBER: US 60/355,514
| PRIOR FILING DATE: 2002-02-06
| NUMBER OF SEQ ID NOS: 79
| SOOTWARE: Patentin version 3.1
| SEQ ID NO 68

Amino

Acide

```
RESULT 14
US-10-126-927-67/c
US-10-126-927-67/c
; Sequence 67, Application US/10126927
; Publication No. US20030082575A1
; GENERAL INFORMATION:
; APPLICANT: The Scripps Research Institute
; APPLICANT: Schultz, Peter G
                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; LENGTH: 3305
; TYPE: DNA
; ORGANISM: Streptomyces
US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Sim
Matches 391;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                       2102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2459
                                                                                                                                                                                                                                                                                                                                                                                              2159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2757
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     381
                                                                                                                                                                                                                                                       799
                                                                                                                                                                                                                                                                                                                                                                                                                                           679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                    GAGCGTGCGGCTGCCCGCCTCCCGCAGCAGCCCGGCGAACATGCCGCCCACCGCTCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGCCGACGACGACGCTCCGGGGGAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                            GACGTCGCCCACCAGGCAGGCGTCCGGC---CGTCCCGGCGGCGCGTACGAGGTCGACGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCGGAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGTCCGGTCGTGCTCCTCCGCCGTGAGCCGTACGGCCTGCCGCCGCCCTCGACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCCCCGTGACCCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ecceacecccceeccarccceeeeaarece 829
                                                                                                                                                                                                                                                                                                                                               CTGCGCTCCTTCGCCGCGCTGGTCGGCGACCGACCGGGACCGTGCCGACGCCCCCGGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCGAGCAGGACGAGGTCCGCGTCCCGGAGGGCGGCGCGAGCTCGGGCCCCGGCGCGCGT

    --ccaccagerecreciceccicique

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ecriceccircecceccircecerosacercesecirceseceseceacies en en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en entre en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en estados en entre en estados en estados en estados en estados en estados en entre en estados en entre en estados en entre en entre en entre en entre en entre en entre en entre en entre en entre en entre en entre en entre en entre en entre en entre en entre en entre en entre entre en entre en entre en entre entre en entre en entre en entre entre en entre en entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre en
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGGGCCGCGAGCTCCGCGGCCATGCCCGTCCGGACAGGGTGTCGGCGAGCAGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCACGACCGGACGACGGCCGCCACCCAGGCCCTGACGCCACGCCGTGCTCCTCTCCTTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGTCATGCCGGCGGCGGGGGGGAACATCGGGTTGAGGCCCACGTGCTGGACGCCGGGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGCAGCAGGGCCGTGACGCCCGGCCCGTCCCTGGTGACCACGGCCGCCCACGGCCCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATGCGGCCGGGCGCGCTGCTCGCCGACACCCTGTCCGGACGGGCATGGCCGCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGGATGTCCCCGTACACCTCGGGGCTGCCGCCGAGCACACGGGCCAGGAGGGCGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGGGTCGTCGGCGCGCTCCGGGTCCGGGTCGGCGCGATCAGCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCGGTCGCATGAGCCGGGTCACGGGCGCCACGGCCTTGAGGGCCACGTCCTCGTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GGCGGCGGTGCCGTCGCCGCCAGGGCCCGGACGTCGACGCCGAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 106.2; DB 14;
Pred. No. 1.6e-13;
0; Mismatches 413;
                                                                                                                                                                                                             2012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80
                                        S
                                                                                     밁
                                                                                                                                    S
                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                    뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; ORGANISM: Plasmid US-10-126-927-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Santoro, Stephen W
APPLICANT: Zhang, Zhiwen
TITLE OF INVENTION: In Vivo Incorporation of
FILE REFERENCE: 54-000120US
CURRENT APPLICATION NUMBER: US/10/126,927
CURRENT FILING DATE: 202-04-19
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR FILING DATE: 2001-04-19
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR FILING DATE: 2002-02-06
NUMBER OF SEQ ID NOS: 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn version 3.1
SEQ ID NO 67
LENGTH: 12391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: DNA
    2573
                                                                                         2633
                                                                                                                                                                                 2693
                                                                                                                                                                                                                                                                                                                                                                    2813
                                                                                                                                                                                                                                                                                                                                                                                                                                                              2873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2933
                                            621
                                                                                                                                                                                                                             501
                                                                                                                                                                                                                                                                                                                                                                                                               381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
    CATGCGGCCGGGCGCCTGCTCGCCGACACCCTGTCCGGTCCGGACGGCATGGCCGGGA 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCACCIGGIGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGACCCGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTGGATGTCCCCGTACACCTCGGGGCTGCCGCCGAGCACACGGGCCAGGAGGGCGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGAAGGAGCGCAGGGCCTCGGCGAGCGCCCGGCGGACGCCGCGCGGGGGGTTGGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cegedricerceecearceeeercerceecearceeeercercerceccarcaececee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTCGTCGGCGGCAGCGGGGCGGGCGGGCTGCTGCGGGAGGC
                                                                                         ĠĊĊĊĠĠŦĊĠĊAŦĠĀĠĊĊĠĠĠŦĊĀĊĠĠĊĠĊĊĀĊĠĠĊĊŦŤĠĀĠĠĠĊĊĀĊĠŦĊĊŦĊĠŦĠŦĀĊ
                                                                                                                                    GCTCGCCCTCGCCCCCCCCCCGCGTCGACGTCCGGGGCCCTGGCGGCGACGGCACCGCCGCC
                                                                                                                                                                                 GGTCATGCCGGCGGCGGGGGGGAACATCGGGTTGAGGCCCACGTGCTGGACGCCGGGGGC
                                                                                                                                                                                                                                                                                                                       GGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCGGAGGA
                                                                                                                                                                                                                                                                                                                                                                    CCGCAGCAGGGCCGTGACGCCCGGGCCCGTCCCTGGTGACCACGGCGGCCACGGCCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                               CGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTCCGGTCGTCCTCCGCCGTGAGCCGTACGGCCTGCCGCCGCCCCTCGACGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chin, Jason
Liu, David R
Magliery, Thomas
Meggers, Eric L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Wang, Lei
Anderson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mehl, Ryan A
Pastrnak, Miro
Santoro, Stephen
                                        · cca cca e grecre cre ce ce cere e en como en como en como en como en como en como en como en como en como en
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10.9%;
ilarity 48.2%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pSC101, Streptomycese venezuelae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GGCGGCGGTGCCGTCGCCGAGGGCCCGGACGTCGACGCCGAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 105.4; DB 1
Pred. No. 1.5e-13;
0; Mismatches 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of Unnatural Amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          411;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         papABC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12391;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
```

2694 500

560

440 2814 380 2874

2754

2934

2992

260

3052

200

3112

80 ω --

Ş

유

```
RESULT 15
US-10-156-761-6049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
S
                                 밁
                                                                   ঠ
                                                                                                      문
                                                                                                                                5
                                                                                                                                                                          문
                                                                                                                                                                                                         გ
                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                             र्
                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                     श
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; FEATURE:
; NAME/KEY: CDS
; LOCATION: (1)..(1167)
US-10-156-761-6049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: ISHIKAWA, HIROSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SHIBA, TADAYOSHI
APPLICANT: SAKAKI, YOSHIYUKI
APPLICANT: HATTORI, MASAHIRA
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
FILE REFERENCE: 249-262
FULRENT APPLICATION NUMBER: US/10/156,761
CURRENT FILING DATE: 2002-05-29
PRIOR APPLICATION UMMBER: JP 2001-204089
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR APPLICATION NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
NUMBER: JP 2001-272697
PRIOR FILING DATE: 2001-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Simi
Matches 393;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 6049, Application US/10156761
Publication No. US20030119018A1
GENERAL INFORMATION:
APPLICANT: OMURA, SATOSHI
APPLICANT: IKEDA, HARUO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 15109
SEQ ID NO 6049
LENGTH: 1167
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      679
 362
                                    404
                                                                   302
                                                                                                      344
                                                                                                                                         242
                                                                                                                                                                            284
                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                224
                                                                                                                                                                                                                                                                                                                      164
                                                                                                                                                                                                                                                                                                                                                                                           104
                                                                                                                                                                                                                                                                                 122 GACGGCCGGACGCCTGCTGGTGGGCGACGTCACCGCGGCGGGGCCCGAACTCGCGGCCG 181
                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
 ACCCGATGTTCGCCCCCCCCCCCCCGCCGGCATGACCCGACCCGTGGCCGCCGTGGTCACCA
                                 CCCCGCAGGCGCTCGCCCTCGCCCCGAGGAGCTGCGCCGCTATCTGCGCCGCC 463
                                                                                                      CCCTGCGCGACGCGCGCTCTCCGAGGCGTACGACCTCCTCGTCGTCGACCTCCCCCGG 40:
                                                                                                                                       GCCTGGACGCCGAGGAACTCACCCCCCTCCCCGGCGCCCGAGGAACTCGCCCTGCTGCGCG
                                                                                                                                                                                                           CCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGACGACGTGGCCCTCAAGGCCG 241
                                                                                                                                                                                                                                                CGGACCTCACCGCCTTCCAGGACCGCCGCCGCCACCGCCTCGACTTCCTCGGCGCCGCCC
                                                                                                                                                                                                                                                                                                                                                     ccesecrecrecesakesceseckecceckcecrcercercekcrcercerkcrcecceccec
                                                                                                                                                                                                                                                                                                                                                                                        GCCGCCGACGACGCTCCGGGGGAA 2370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ecceacecccceeccarccceeeeea 825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCGTGCGGCTGCCCGCCTCCCGCAGCAGCCCGGCGAACATGCCGCCCAACCGCTCCGCT 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACGTCGCCCACCAGGCAGGCGTCCGGC---CGTCCCGGCGGCGGTACGAGGTCGACGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGGGACATCCAGCGGTCCAACCCCCGGGCGTCCGCCGCGCGCCGCGGGCGCTCGCCGAGGCC
                                                                                                                                                                                                                                                                                                                      CCGTCGAAGCCGCACCGGGCCTGACCGCCTGGCGCCCCGACGCCGACCGCTTCCGCG
                                                                   GGACGGGCATGGCCGCGGAGCTCGCGGCCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCA 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           avermitilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 105.2; DB 15;
pred. No. 3.5e-13;
0; Mismatches 453;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 15; Length 1167;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                              <del>.</del>.
                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                283
                                                                                                                                                                                                                                                                                                                      223
                                                                                                                                                                                                                                                                                                                                                                                          163
                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    738
                                                                                                                                                                            343
```

```
842 ACCTCGACGGCG 853
                                                                                                                                            824
                                                                                                                                                                             722
                                                                                                                                                                                                                 764 CCGGCCTCGCCCAGCAGCGCAAGTTCCTCGAGGAGTGGCGGGGGGAGTACCGGCTCC
                                                                                                                                                                                                                                                  662
                                                                                                                                                                                                                                                                                      704
                                                                                                                                                                                                                                                                                                                           602
                                                                                                                                                                                                                                                                                                                                                             644 GACCGGCCGGCGCCGACGCCGTCCGCGCCGCCGCCACCGGCTTCGCCCTGCGCGCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                584 CCGCGGTCGAGGCGGTCGTCGAGGACCGCGCCACGACCGTACGACTGGTCGCCGAGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                              482 TACGGCTCACGGCGGAGGAGCACGACGACGACGGCGCCACCCAGGCCCTGACGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          782 CCGACGCCCCGGGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCCGGGA
TCGCCGACGACG
                                                                   TCGCCGTACCCGGCGTCAACGACGCGCCTGGGCCGGTCGAGTGGTCCGTCGCCGACCGCC
                                                                                                                                            ACGAACTC-----CCGCACCTCGGACACGACCCGCGCGGCGGACGACCTGGCCGCAC
                                                                                                                                                              GCATCGACACCCTGATCGCGAACCGGCTCCTGCCCGAGGAGGCCGACGACGCCTGGTCGG
                                                                                                                                                                                                                                                                                                            cggcgacggcaccgccgcccaccaggrgcrgcrgcccccrccrggccccgrgrgcrcggcg
                                                                                                                                                                                                                                                                                                                                                                                 CCGTGCTCCTCCTTCGGGCCTCGCCCTCGCCTCGGCGTCGACGTCCGGGCCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGACGGGCCGGCCGTCACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCG
 949
                                                                                                        841
                                                                                                                                                                             781
                                                                                                                                                                                                                                                                                                                                                             703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                            877
                                                                                                                                                                                                                 823
                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                                      763
                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                    643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                523
```

5 B 5 B 5 B

밁

Search completed: October 5, 2005, 09:57:35
Job time : 982.313 secs

& B 8 B 8

This Page Blank (uspio)

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OM nucleic - nucleic search, using sw model
                                                                                                                  0000
                                                                                                                                                                                                  O
                                                                                                                                                                                                                                                                                                           იი
      იი
                                                                                       a
                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           92:
        222118
222109
232109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                    125.8
125.8
125.2
125.2
124.6
124.6
123.8
123.8
123.6
123.6
123.6
                                                                                                                                                                                                                                                                        134.6
133
131.2
128.6
127
126.8
126.8
                                                                                                                                                                                                                                                                                                                                                                                                                            Score
     123
122.8
122.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDENTITY NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34239544 seqs, 19032134700 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           October
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-089-514-5
     13.7
13.7
13.3
11.3
13.1
13.3
11.3
13.1
11.3
13.1
11.3
13.1
11.3
13.1
11.3
13.1
11.3
13.1
11.3
13.1
11.3
13.1
11.3
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
13.1
1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    atgagcggcttcccccgcag.....aaggcgagaaggaccgatga 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gb_est3:
gb_est4::
gb_est5::
gb_est6::
gb_gss1::
* * * * *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gb_est2:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gb_est1:*
gb_est2:*
                                                                                                                                                                                                                                                                                                                                                                                                                          Length
     1406
2243
11137
11350
11780
11980
11998
1692
1073
1073
11821
1256
1257
2332
1355
1355
1452
1452
1452
1268
11678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4, 2005, 20:20:08 ; Search time 3664.34 Seconds (without alignments) 10065.737 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.6 (c) 1993 - 2005 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                            멂
                 AG441877
AG3659386
BZ569386
CG756569
AG381996
BB6809979
BM450237
AG44823
CC1990008
AG396765
CCK209416
CCL081011
CC1476590
CCL481011
CC1476593
AG341503
AG341503
AG341571
B6852363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUMMARIES
                                                                                   BG809979
BM450237
AG448243
CC190008
AG396765
CK209412
CL0905610
CL47681011
CL4763333
AG363333
AG363333
AG363333
AG363333
                                                                                                                                                                                                                                                                                                                       BZ569386
CG756569
AG381986
                                                                                                                                                                                                                                                                                                                                                                        AG441877 Mus muscu
AG365356 Mus muscu
                                                                                                                                                                                                                                                                                                                                                                                                                         Description
Mus muscu
Pan trogl
AGENCOURT
1024034A0
Pacs1-60
SAIL_788
                                                                                                                                                  Mus muscu
FGAS02117
ISB1-17N1
CH216-160
SAIL_258
Mus muscu
                                                                                                                                                                                                                                                                                                                                       Mus muscu
pacs2-164
P051-4-B0
                                                                                                   Mus muscu
                                                                                                                                                                                                                                                     Mus muscu
CH261-138
                                                                                                                                                                                                                                                                                      mgct002xd
AGENCOURT
                                                                                                                                                                                                                                                                                                                       Mus muscu
                                                                                                                                      Mus muscu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 1
AG441877/c
LOCUS
                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence.
AG441877
AG441877.1
GSS.
                                                                                                                                                                     R.Site 1
R.Site 2
                                                                                                                                                                                                      Vector
                                                                                                                                                                                                                                                        PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AG441877
```

	ი		ი	ი			a		o			a	ი	a		a	ი	ი		
45	4.	4	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25
118.6	118.8	118	119	119.4	119.4	119.6	120.2	120.2	120.4	120.4	120.6	120.6	120.8	120.8	121	121.2	121.4	122	122.4	122.8
12.2					12.3	12.3	12.4	12.4		12.4	12.4	12.4	12.5	12.5	12.5	12.5		12.6		12.7
1674	965	200	1360	1120	1116	1625	1853	1339	1552	1131	1300	1216	1822	1628	1885	1956	1280	2017	1280	1421
9	ω ,	۰ م	φ	9	œ	9	9	4.	ø	9	ø	9	9	9	φ	9	9	9	9	œ
CL078342	AO893417	AG159162	CL469817	AG136785	BZ569478	AG043477	AG382854	BM458211	AG430101	AG042920	AG430756	AG441574	AG435170	CG757066	AG363563	CG754548	CL470317	AG435283	CL470317	BZ569488
CH2	HS	_	CL469817 SAIL 133	AG136785 Pan trogl	BZ569478 pacs2-164	AG043477 Pan trogl	AG382854 Mus muscu	BM458211 AGENCOURT	AG430101 Mus muscu	AG042920 Pan trogl	AG430756 Mus muscu	AG441574 Mus muscu	AG435170 Mus muscu	CG757066 P052-2-A0	AG363563 Mus muscu	CG754548 P050-1-A1	CL470317 SAIL_140_	AG435283 Mus muscu	CL470317 SAIL_140_	BZ569488 pacs2-164

ALIGNMENTS

```
Submitted (17-NOV-2003) Masahira Hattori, The Institute of Physical and Chemical Research (RIKEN), Génomic Sciences Center (GSC); 17-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:hattori@gsc.riken.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)

Clomes are derived from the mousé BAC library MSMg01. For BAC library availability, please contact Kuniya Abe (abe@rtc.riken.jp). Tsukuba Institude, Bio Resource Center, Tsukuba Institude, Bio Resource Center, Tsukuba 105-014 Japan (Chémical Research (RIKEN) 3-1-1 Koyadai, Tsukuba, 305-0174 Japan phone: 81-298-36-9189, fax: 81-298-36-9199

e-mail: abe@rtc.riken.jp
                                                                                                                                                                                                                                                                                                                                                                                      Sequencing : TJ
LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hattori,M., Toyoda,A., Noguchi,H!, Kojima,T. and Sakaki,Y. BAC end Sequences of Library MSMg01 Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 1462)
Hattori, M., Toyoda, A., Noguchi, H., Kojima, T. and Sakaki, Y.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus molossinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Crániata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mus musculus molossinus
                                                                                   /organism="Mus musculus mol
/mol_type="genomic DNA"
/sub_specise="molossinus"
/db xref="taxon:57486"
/clone="MSMg01-323H09.TJ"
                                                                                                                                                                                                                                                                       Location/Qualifiers
/tissue_type="mixture of kidney and spleen'
/clone_lib="MSMg01 Mouse Male BAC Library"
                                                                                                                                                                                                                                                                                                   : pBACe3.6
: EcoRI
: EcoRI.
                                                          sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GI:48084940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1462
DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             bp DNA linear c
clone:MSMg01-323H09.TJ,
                                                                                                                                                                                                               molossinus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSS 03-JUN-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   survey
```

```
RESULT 2
AG365356/c
LOCUS
              KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                 ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               र्श
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     934
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422;
                                               Mus musculus i
sequence.
AG365356
AG365356.1 G
GSS.
Mus musculus i
                                                                                                                                                                                                                                                                                 AG365356
Mus musci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ഗ
              Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACGCACGCCGTGCTCCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCGGGGCCCGAACTCGCGGCCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GECTECTECEGEAGECEGEAGECECACECTCETCETCEACCTCGTACCECCECCEGEAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCGGCGGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCTGGCGGCACGGCACCGCCCCACCAGGTGCTCGCCCTCCTGGCCCGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ercaccaeeeaceececercaceeccrecrecrecrecrecresses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGATGTTCGCCCCCGCCGCCG------GCATGACCGGCCGACCCGTGGCCGCCGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cedecareccecedes de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                 GI:47976561
                                                                                                                                                                                                                                                                                     molossinus
              molossinus
                                                   molossinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 134.6; DB 9;
Pred. No. 6e-13;
n. Mismatches 396;
                                                                                                                                                                                                                                                                            1469
DNA,
                                                                                                                                                                                                                                                                            clone:MSMg01-168A20.T7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                           GSS 03-JUN-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14;
                                                                                                                                                                                                                                                                            genomic survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          935
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                        В
                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                             1028
                                                   429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              408;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vector
R.Site 1
R.Site 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequencing :
LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished
GCCGGGCGTCACGGCCTGCGGCTCGACGGCGGCGGCGGCAGGCCCGTACGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             crrccccecaecarcerceseeseeseeseeseeseeseeseereer
                                                                                                                                             George Contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la contract de la
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTGCGGGAGGCCGCACGCTCGTCGTCGACCTCGTACCGCCCCGGGACGGCC
                                                                                                                                                                                                                        CATGGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGTGACCCGGCTCATGCGGGCCGGGCGCGCTCGCTCGCCGACACCCCTGTCCGGTCCGGACGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENCÉCEGN CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           circoctroscirececios de contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra contra
```

488

969

1089

1145

248

308

1205 188

```
Submitted (17-NOV-2003) Masahira Hattori, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC); 1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:hattori@gsc.riken.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)
Clones are derived from the mouse BAC library MSMg01. For BAC library availability, please contact Kuniya Abe (abe@rtc.riken.jp). Tsukuba Institute, Bio Resource Center, The Institute of Physical and Chemical Research (RIKEN) 3-1-1 Koyadai, Tsukuba, 305-0074 Japan phone: 81-298-36-9189; fax: 81-298-36-9199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 (bases 1 to 1469)
Hattori,M., Toyoda,A., Noguchi,H., Kojima,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               e-mail: abe@rtc.riken.jp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BAC end Sequences
                                                 Conservative
                                                                                                                                                                                                                                                                     /organism="Mus musculus m
/mol_type="genomic DNA"
/sub_species="molossinus"
/db_xref="ttaxon:57486"
                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                       tissue_type="mixture of kidney and spleen"
/clone_lib="MSMg01 Mouse Male BAC Library"
                                                                                                                                                                                                                                                   clone="MSMg01-168A20.T7"
                                                                                                                                                                                                                              'sex="male"
                                                                                                                                                                                                                                                                                                                                                                              .1469
                                                                      13.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                             pBACe3.6
EcoRI
EcoRI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Toyoda,A., Noguchi,H.,
uences of Library MSMg01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T7
                                               0;
                                                                         Score 133; DB 9;
Pred. No. 1.1e-12;
                                               Mismatches 442;
                                                                                                                                                                                                                                                                                                                                                         molossinus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kojima, T.
                                                                                              Length 1469;
                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sakaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sakaki, Y.
                                               4.
                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Physical
83
```

```
RESULT 3
BZ569386
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                Matches 423;
                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pacs2-164 8365.xlul pacs2-164 Pseudomonas pacs2-164_8365, genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genome Center
University of Washington
Box 352145, Seattle, WA
Tel: 2062216954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Whole-Genome-Sequence variation Psedomonas aeruginosa library J. Bacteriol. (2002) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Spencer, D.H., Raymond, C.K., Smith, Burns, J.L., Kaul, R. and Olsen, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Chris K. Raymond
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pseudomonadaceae; Pseudomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacteria; Proteobacteria; Gammaproteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCCCGGGCGCCGCCGCCCATCCCCGGGGATGCGACGGCGCGCGGAACCTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCGCGGACGGCCGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGGCGGNNNGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGCGTCTTCGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cererectrices en contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata del contrata del contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata del contrata del contrata del contrata del contrata de la contrata de la contrata de la contrata de la contrata del contrata de la contrata de la contrata del contrata de la contrata de la contrata de la contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contrata del contr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 1610)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2066857244
                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                           shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               craymond@u.washington
                                                                                                                                                                                                                                                                                                           /organism="Pseudomonas
/mol_type="genomic DNA"
/strain="2-164"
                                                                                                                                                                                              /clone="pacs2-164_8365"
/clone_lib="pacs2-164"
/note="clinical isolate 2-164
                                                                                                                                                                                                                                                                                   db_xref="taxon:287"
                                                                                                                                                                                                                                                                                                                                                                                                                             ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                   .1610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:27203941
                                                    13.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   862
                          Score 131.2; DB 8;
Pred. No. 2.2e-12;
0; Mismatches 476;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       98105-2145,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Smith, E.E.,
                                                                                                                                                                                                                                                                                                                                                                     aeruginosa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         among
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         multiple
                                                                                                                                                                                              Whole
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sims, E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 aeruginosa
                                                                            Length
                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                           genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pseudomonadales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           isolates
                                                                                     1610;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hastings
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSS 17-DEC-2002
a genomic clone
                                                                                                                                                                                              shotgun
                             6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ġ.
                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    548
                             Ν
                                                                                                                                      RESULT 4
CG756569
LOCUS
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                   음 성
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                      1027
                                                                                                                                                                                                                                                                                                                                     912
                                                                                                                                                                                                                                                                                                                                                                                             967
                                                                                                                                                                                                                                                                                                                                                                                                                                                     852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    133
genomic survey (CG756569) CG756569.1 GI:: GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12
                                                                                                         CG756569
P051-4-B06.zb
                                                                                                                                                                                                                                                                                      က်
မေရ
                                                                                                                                                                                                                                                                                                                                           CCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGAGGCCCTGCGCTCCTTCGCCGCCGCCTGGTCGGCCGACCGCCGACCGTGCCGACGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCGCCCGCNGCCCCGNGGGCGCGCGCGCGGGCGGGCCGGGCCCGGGCCGGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCCTTCGGGCTCGCCTCGCCCTCGGCGTCGACGTCCGGGGCCCTGGCGGCGACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCGGGGAGCTCGCGGCCCCACGCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGCCAGGACCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGGCGCCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCCCGGGAACCTCGACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Accecceccaccae de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cceccnednéccccecececcnéececedecccececececececececececececece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    écedecedecnececennées de cécece de cece                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGCGCGCCNNCGGCGCGCCNGGGCGCGCGNGCNCGCCGNGCCCGCGCGCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCCCCCCCCCCCCATGACCCGCCCACCCGTCGCCCCTGGTCACCAGGGACGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCCGGCTCATGCGGCCGGGCGCGCTGCTCGCCGACACCCCTGTCCGGTCCGGACGGGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGCCTGCCTGGTGGGCGACGTCACCGCGCGCGCCGGCCCGAACTCGCGGCCCCCCCGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCGGGACGGCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       916
                                                                                                                                                                                                                                                                                   1031
                             GI:37984265
                                                                                                            Ppa
                                                                                                            EcoRI
                                                                                                            1406
BAC 1
                                                                                                            Library
                                                                                                            DNA linear GSS 24
Y Pristionchus pacificus
                                                                                                            GSS 24-OCT-2003
cificus genomic,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192
                                                                                                                                                                                                                                                                                                                                                                                                                                                     911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               71
```

```
Ś
                      밁
                                                                  밁
                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                         Ś
                                                                                      Ş
                                                                                                               밁
                                                                                                                                  S
                                                                                                                                                         밁
                                                                                                                                                                              á
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                             528
                                                                  841
                                                                                         468
                                                                                                                                                            721
                                                                                                                                                                                 348
                                                                                                                                                                                                        661
                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                541
                       901
                                                                                                               781
                                                                                                                                    408
                                                                                                                                                                                                                            289
                                                                                                                                                                                                                                                                          229
                                                                                                                                                                                                                                                                                                                     169
                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                 109
                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                              49
                                                                                                                                                                                                                                                                                                                                                                                                                                  al Similarity
427; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Evolutionary Biology
Max-Planck-Institute for Developmental Biology
Spemannstr. 37-39, Tuebingen D-72076, Germany
Tel: 00497071601371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 (bases 1 to 1406)
Srinivasan, J., Sinz, W., Jesse, T., Wiggers-Perebolte, L., Jansen, K., Buntjer, J., van der Meulen, M. and Sommer, R.J.
An integrated physical and genetic map of the nematode Pristionchu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pristionchus pacificus
Pristionchus pacificus
Eukaryota, Metazoa, Nematoda, Chromadorea,
Neodiplogasteridae, Pristionchus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: ralf.sommer@tuebingen.mpg Class: BAC ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Sommer RJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22835951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 pacificus
                                                                                                                                                                                                                                                                                                                                                                                      GCACGTGGGCCTCAACCCGATGTTCGCCCCCCCCCCGCCATGACCGGCCGACCCGTGGC
                                                                                                                                                                                                                            ACCCTGTCCGTCCGGACGGGCATGGCCGCGGGCCGACGCCCCCG-GCGTCCA
                                                                                                                                                                                                                                                                         GAACTCGCGGCCCCCCCGGGACGCGGACCTCGTCCTCGCCCGTACACGACGACGTG
                                                                                                                                                                                                                                                                                                                                                            GTACCGCCGCGGGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCCGGGGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                          CGTCCGGGCCCTGGCGACGGCACCGCCCCCACCAGGTGCTGCTCGCCCTCCTGGC
                                            GGCCCTGACGCACGCCGTGCTCCTCCTTCGGGGCTCGCCCTCGCCCTCGCCTCGA
                                                                  CGCCGTGGTCACCAGGGACGGGCCGCGGCGTCACGGCCCTGCTGCGGCCTCGTCGAGGGCGG
                                                                                                                                                         GCGCGCCCGCCCGNCCGGCCGGGGGCCGCGCGCCCGGGCCGGGCCGGCCGGCCCGGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               00497071601498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Genet. Genomics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db xref="taxon:54126"
/clone_lib="Ppa EcoRI BAC Library"
/note="The library was generated by a partial digest
the genomic DNA with EcoRI and cloning into the BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Pristionchus
/mol_type="genomic DNA"
/strain="California"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . .1406
                                                                                                                                                                                                                                                                                                                                                                                                                                           13.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     269
                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                Score 128.6; DB Pred. No. 6e-12; O; Mismatches 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (5),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     715-722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pacificus"
                                                                                                                                                                                                                                                                                                                                                                                                                                  471;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                     9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1406;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Diplogasterida;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                ω
••
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pristionchus
                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of.
                                                                                                                                                                                                     720
 647
                                                                  900
                                                                                                                                   467
                                                                                                                                                                                407
                                                                                                                                                                                                                            347
                                                                                                                                                                                                                                                   660
                                                                                                                                                                                                                                                                         288
                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                                168
                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                         780
                                                                                                                                                                                                                                                                                                                    228
                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 5
AG381986/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Locus
                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1319 Ć 1319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       948 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                      Vector
R.Site
R.Site
                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence.
AG381986
                                                                                                                       Sequencing : TJ
LIBRARY
                                                                                                                                                                                                                                                                                              Direct Submission
                                                                                                                                                                                                                                                                                                         Hattori, M.,
                                                                                                                                                                                                                                                                                                                               Unpublished
                                                                                                                                                                                                                                                                                                                                        Hattori,M., Toyoda
BAC end Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                AG381986
Mus musculus
                                                                                                                                                PRIMERS
                                                                                                                                                         e-mail: abe@rtc.riken.jp
                                                                                                                                                                                                                                                                                                                                                                            Mammalia;
                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus molossinus
                                                                                                                                                                                                                                                                                                                                                                                                                                  AG381986.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         948
     /sub_species="moiossim
/db_xref="taxon:57486"
/clone="MSMg01-192D21."
                                                                1. .2243
                                                                           Location/Qualifiers
                                                                                      : pBACe3.6
: EcoRI
: EcoRI.
                                                                                                                                                                                                                                                                                                                                        Toyoda, A., Noguchi, H., uences of Library MSMg01
                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:47993191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  molossinus
                               species="molossinus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2243
DNA,
```

```
Submitted (17-NOV-2003) Masahira Hattori, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (SSC); 1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:hattori@gsc.riken.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)

Clones are derived from the mouse BAC library MSMg01. For BAC library availability, please contact Kuniya Abe (abe@rtc.riken.jp). Tsukuba Institute of Physical and Chemical Research (RIKEN) 3-1-1 Koyadai, Tsukuba, 305-0074 Japan phone: 81-298-36-9189, fax: 81-298-36-9199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus molossinus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGTGTGCTCGGCGGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTCGCGGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGA 947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACGGCGCCGGGAACCTCGACGGCGTCTTCGGGGAACCTCCGCCGGCTCATGGGACCGGA 887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGACCCGGACCGTGCCGACGCCCCCGGGCGCGACGCCCCCGGCCATCCCGGGGGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 2243)
tori, M., Toyoda, A., Noguchi, H., Kojima, T.
/organism="Mus musculus molossinus"
/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eutheria; Rodentia; Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bp DNA linear GSS 03-JUN-2JUN-ZUNA clone:MSMg01-192D21.TJ, genomic Burvey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kojima, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sakaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sakaki,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GCCGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              707
```

ORIGIN

Matches Query Match

450;

1907

ហ

1847

65

1788

```
Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGTGCTCCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGCGCCGGGCGGCCGNGNGCCCCC
                                                                                                                                                                                                                                                                                                                                            ACGGGCCGGGCGTCACGGCCCTGCTGCGGCGTCGTCGACGGCGGCGGCGGCAGGCCCGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCGCGGGGCCCGAACTCGCGGCCGCCC 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCGCGGAC 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGCCCA
                                                                                                                                                                                                                                              CGACGCCCCGGGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCCGGGAA
                                                                                                                                                                                                                                                                                                                                                                                          CAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCTCACGGCGGAGGAGCACGACCGGACGACG--GCGGCCACCCAGGCCCTGACGCACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGACGACGTGGCCCTCAAGGCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENCUACTOCCAGENGCTETTCCGCACCC
                                                                                                                                              CGATGTTCGCCCCGCCGCCGCCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGG 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tissue_type="mixture of kidney and spleen"
|clone_lib="MSMg01 Mouse Male BAC Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 127; DB 9; I
Pred. No. 1.1e-11;
0; Mismatches 473;
                                                983
                                                                                                931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 2243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                            842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   364
                                                                                                                                                                                                                                            1072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1729
                                                                                                                                                1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 6
BG809979/c
LOCUS
                                 ঠ
                                                                                                                                 á
                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
밁
                                                                                           문
                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1080
  722
                                           363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Ralph A. Dean
Contact: Ralph A. Dean
Fungal Genomics Laboratory
North Carolina State University
Campus Box 7251, Raleigh, NC 27695,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Fungi; Ascomycota; Pezizomycotina; So: Sordariomycetes incertae sedis; Magnaporthaceae; 1 (bases 1 to 1137)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Magnaporthe grisea (anamorph: Pyricularia
Magnaporthe grisea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mgct002xd01f Magnaporthe grisea Appressorium Stage grisea cDNA clone mgct002xd01f 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Fax: 919-513-0024
Email: ralph_dean@ncsu.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Construction and sequence library in the rice blast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Choi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BG809979.1 GI:14180959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                      CCCGATGTTCGCCCCCGCCGCCG----GCATGACCGGCCGACCCGTGGCCGCCGTGGTCA
                                                                                                                                                                                           GECECCETENCICE GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL GENERAL
                                                                                                                                                                                                                                                                                                                                     CCTCCGGGACGCGACCTCGTCCTGCTCGCCGTACACGACGACGTCGCCCTCAAGGCCGT
                                                                                                                                                                                                                                                                                                                                                                                          aceecceanceccaeccaecceceacecceceaecceceaecceceaeccece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGCGGCTTCCCCCCGCAGCGTCGTCGTCGGCGGCAGCAGCGGGCAGCATGTTCGC
GACGGGCATGGCCGCGGAGCTCGCGGCCCACGCCCCGGCGTCCAGCACGTGGGCCTCAA
                                                                                                                                                                                                                                                                                               primer: T3 primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ,W. and Dean,R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         919-513-0020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Site_2: XhoI; The appressorium formation-specIfic cDNA library was constructed from conidia germinated for 5-8 hr on an inductive surface; The library contains over 55,000 clones with average insert size of 1.5 kbp."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /dev_stage="Germinated conidia on apprressorium-inductive
surface"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Magnaporthe
/mol_type="mRNA"
/strain="70-15"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="Magnaporthe grisea Appressorium Stage cDNA"
/note="Vector: pBlueScript SK(+) Vector; Site_1: EcoRI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            db_xref="taxon:148305"
clone="mgct002xd01f"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 126.8; DB 4;
Pred. No. 1.2e-11;
0; Mismatches 468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (AATTAACCCTCACTAAAGGG)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       analysis of an appressorium fungus, Magnaporthe grisea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          grisea'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            grisea)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sordariomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Magnaporthe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST 22-MAY-2001
CDNA Magnaporthe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                stage cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1021
                                             418
                                                                                                                                           362
                                                                                                                                                                                                                                            302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                             723
                                                                                                                                                                                              783
                                                                                                                                                                                                                                                                                            843
                                                                                                                                                                                                                                                                                                                                                                                          903
                                                                                                                                                                                                                                                                                                                                                                                                                                          182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N
```

밁 ક 밁 á 문 8 밁 S 밁 ş 밁 ঠ 밁 Ś 밁 á 밁 ঠ В Ś 밁 ş 밁 8 밁 S 밁 á 밁 ঠ 밁 á

1011

1071

843

1191

723

1250

1310

603

1131

783

1370

543

1430

485

1490

1550

365

425

1610

305

1669

1728

Indels Length 1350;

<u>ن</u>

```
RESULT 7
BM450237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1350
AGENCOURT_6393396 NIH_MGC_72
5', mRNA sequence.
BM450237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (Dases 1 to 1350)

NIH-MGC http://mgc.nci.nih.gov/.

National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                       http://image.llnl.gov
Plate: LLAM12204 row: p column:
                                                                                                                                                                                                                                                                                                                                                                       CDNA Library Preparation: Life Technologies, Inc. CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Agencourt Bioscience Corporation Clone distribution: MGC clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC/DCTD/DTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BM450237.1 GI:18499277
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGGCGGCGACCGCCCCCCCCCACCAGGTGCTCCCCCCCTCCTGGCCCCGTGTGCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAACCTCGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  eleccence con a serio de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra del contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra de la contra del la contra del la contra del la contra del la contra del la contra de la contra de la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la contra del la cont
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACGCCGTGCTCCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          quality sequence stop: 370.
/clone="IMAGE:5528315"
/tissue_trype="melanotic melanoma"
/lab host="DH10B (phage-resistant)"
/clone_lib="NIH MGC_72"
/clone="Organ: Skin; Vector: pCMV-SPORT6; Site_1: NotI;
/note="Organ: skin; Vector: pCMV-SPORT6; Site_1: NotI;
Site_2: Sall; Cloned unidirectionally. Primer: Oligo dT
Site_2: Sall; Cloned unidirectionally. Primer: Oligo dT
                                                                                                                                                                       /organism="Homo sapiens"
/mol_type="mRNA"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                       ocation/Qualifiers
                                                                                                                                                                                                                                                     . .1350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 05-FEB-2002
MAGE:5528315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  893
                                                                                                                                                                                                                                                                                                                                                                                                   ьe
                           ďТ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       538
                                                                                                                    5
                                                                                                                                                                         밁
                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                       뭐
                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
     RESULT
                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 399;
                                                                            1185
                                                                                                                                                                            1125
                                                                                                                                                                                                                                                                          1065
                                                                                                                                                                                                                                                                                                                                                                          1005
                                                                                                                                                                                                                                                                                                                          818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       42 GGCGGTGGGCGGCATGTTCGCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGT 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCCCGGGCGGCGTCCGCGCGCGCGCGCCGAGGCCCTGCGTCCTTCGCCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGGCCCGAACTCGCGGCCCCCCCCCCGGGACGCGCCCTCGTCCTCGCCCGTACACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ceaccreeracecececeesaceccreerecereesesesescereacece
                                                                            NGGCNNCCGCC 1195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGGCGGCGGCAGGCCCGTACGGCTCACGGCGAGGAGCACGACCGGACGACGACGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGNCCCGCCCCGGGCGCCCCCCCCCCCGGGCGCGCGGGNGCGGCCCGGNGCCGC-C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCACCGACGAC
                                                                                                                                                                            CGCGGCGNGCGCCGGCCGGNCGNGCGCCCNNCNCCGGCCCCNNCCCCCGNCGCCCGNCN
                                                                                                                                                                                                                       TGGGACCGGAGCTCGCGGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACC
                                                                                                                                                                                                                                                                          CCCCCCNNGNCCCCCGGCGCGCGCGCGCCGCCNNCCCNCGNGCCGGNGCCCGCNCNCNCCC
                                                                                                                                                                                                                                                                                                                       CCGGGGGATGCGACGGCGCGGGAACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCA
                                                                                                                                                                                                                                                                                                                                                                             TEGTCEGCGACGACCCGGACCGTGCCGACGCCCCGGGCGCCGACGCCCCCGGCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCTCCTGGCCCGTGTGCTCGGCGGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGTCGACGTCCG----GGCCCTGGCGGCGACGGCACCGCCCCACCAGGTGCTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cereeccerecrecaceaeceaecceeccerecrecaceccrecrecrececcerecae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CETCCAGCACGTGGGCCTCAACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGCCGACACCCTGTCCGTCCGGACGGACCACGCCCACGCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ĠNCGCCCCCGGGGCGCCCCGGGGGGCGCGGGGGGGCACCNNNNNCGNGGGCNGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GEACETEGCCCTCAAGGCCGTGGCGCCCCGTGACCCCGGCTCATGCGGCCGGGCGCGCCGCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGGACCGGAGCGCGGCGGNNNNNNNNNNNNNNCNNGNCCNTGGNCGCGGCCCNNCCCGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCTGTGTTCGGTCCATCCTCCTTTCTCCAGCCTCCTCCCCTCGCAGGTGGGATCGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Technologies."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13.1%;
                                                                                                                         948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 126.8; DB 4;
Pred. No. 1.2e-11;
0; Mismatches 507;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       507;
```

1184

1124 937

877 1064 817 1004 944 697 637

884

581

764 521 704

824

461

645 401 585

341

525

465

221 405 161 345

281

밁 Ş 밁 8 밁 δ 밁 S 밁 Ś 밁 Ś В Ś 밁 S

538

1051 478 993

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
Ś
                                             밁
                                                                                          δ
                                                                                                                                            뭐
                                                                                                                                                                                  δ
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AG448243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                             819
                                                                                                                                                                                            179
                                                                                                                                                                                                                                            699
                                                                                                                                                                                                                                                                                                                                         639
                                                                                                                                                                                                                                                                                                                                                                                                                                         579
  299
                                                                                             239
                                                                                                                                            759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence.
AG448243
AG448243.1 GI:48091306
GSS.
Mus musculus molossinus
Mus musculus molossinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      461;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vector
R.Site 1
R.Site 2
                                                                                                                                                                                                                                                                                                                                                                                       63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and Chemical Research (RIKEN), Genomic Sciences Center (SCC);
1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:hattori@gsc.riken.jp, URL:http://hgp.gsc.riken.go.jp/,
Tel:81-45-503-9111, Fax:81-45-503-9170)
Clones are derived from the mouse BAC library MSMg01. For BAC library availability, please contact Kuniya Abe (abe@rtc.riken.jp). Tsukuba Institude, Bio Resource Center, The Institute of Physical and Chemical Research (RIKEN) 3-1-1 KOyadai, Tsukuba, 305-0074 Japan phone: 81-298-36-9189, fax: 81-298-36-9199
e-mail: abe@rtc.riken.jp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequencing : TJ
LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Direct Submission Submitted (17-NOV-2003) Masahira Hattori, The Institute of Physical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hattori,M., Toyoda,A., Noguchi,H., BAC end Sequences of Library MSMg01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AG448243
Mus musculus molossinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hattori, M., Toyoda, A., Noguchi, H., Kojima, T. and Sakaki, Y.
                                                                                                                                                                                                                                                                                         CGGGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCGGGGCCCGAACTCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGCGGCTTCCCCCGCAGCGTCGTCGTCGCCGCCAGCGGCAGCGGCGGCATGTTCGC
                                                                                                                                                                                                                                            JOSEPS CONTROL DE SON DE SON DE SON DE SON DE SON DE SON DE SON DE SON DE SON DE SON DE SON DE SON DE SON DE S
                                                                                                                                                                                                                                                                                                                                                                                    TCCGGACGGGCATGGCCGGGGCTCGCGGCCCCCCGGCGTCCAGCACGTGGGCC
                                                  CCGCCCGCCNCGGGNGCC----CCGCCGGGCGGGCGCGGCGCCCGGNCGCCCGCGCCGG
                                                                                                                                               CCGCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGG
                                                                                          (bases 1 to 1780)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Mus musculus molossinus"
|mol type="genomic DAA"
|sub_species="molossinus"
|db_xref="taxon:57486"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tissue_type="mixture of kidney and spleen"
/clone_Tib="MSMg01 Mouse Male BAC Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                clone="MSMg01-332C01.TJ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            : EcoRI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pBACe3.6
EcoRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 126.6; DB 9;
Pred. No. 1.3e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1780
DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches 468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bp DNA linear (
clone:MSMg01-332C01.TJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Kojima, T. and Sakaki, Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 1780;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GSS 03-JUN-2004
, genomic survey
                                                                                                                                                                                                                                                                                                                                                                                       118
                                                                                                                                            818
                                                                                                                                                                                                                                                                                            178
                                                                                                                                                                                                                                                                                                                                                                                                                                         638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                               874
                                                                                               298
                                                                                                                                                                                            238
                                                                                                                                                                                                                                            758
                                                                                                                                                                                                                                       JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 9
CC190008
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  539 ACGCCGTGCTCCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               934 cécedeseceses de des estas de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara de la compara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               875
                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Archosauria; Aves; Neognathae; Gálliformes; Phasianidae; Phasianinae; Gallus.

1 (bases 1 to 1198)

Kremitzki,C., Higginbotham,J., Wýlie,K., Carter,J., McPherson,J., Warren,W., Graves,T., Mardis,E. and Wilson,R.

Gallus gallus BAC End Reads
                                                                                          Genome Sequencing Center
Washington University School of Medicine
Email: submissions@watson.wustl.edu
Insert Length: 182000 Std Error: 0.00
Seq primer: RM1 TACGACTCACTATAGGGAGA
Class: BAC ends
                                                                                                                                                                                                                                     Unpublished (2003)
Contact: Richard K. Wilson
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gallus gallus (chicken)
Gallus gallus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genomic survey sequence. CC190008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1198 bp
CH261-138F22_RM1.1 CH261 Gallus
genomic survey semionin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CC190008.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCGCCGGAACCTCGACGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGCAGCCCGAGGTGTACGGGGACATCCA-----GCGGTCCAACCCCCGGGCGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGCGGCGACGGCACCGCCCCACCAGGTGCTCGCCCCTCCTGGCCCGTGTGCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGTACGGCTCACGGCGGAGGAGCACGACCGACGACGGCCACCCAGGCCCTGACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCAACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCA 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGGACCGTGCCGACGCCCCCGGGCGCGCCGACGCCCATCCCGGGGGATGCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        quality sequence start:
quality sequence stop: 1
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GI:30434823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA linear (gallus genomic clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSS 08-MAY-2003
e CH261-138F22,
```

1411

891

1351

831

771 1291 1231

658

711

1171

```
S
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <del>p</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
     1037
                                                                                                                 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   441;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           σ
                                                                                                                                                                                                                                                                                                                                         Incomparation of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the property of the proper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACGGGCCGCGCTCACGGCCCTGCTGCCGCCTCGTCGAGGCCGGCGGCGGCAGGCCCGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGGCATGGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cccccccccccccccccccccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCCGCGGGGCCCCTTCCNCGCGCCCCCCCCCCCGCGCGGGGGCCCGCGCCCCCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ecccearcectrectrected acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces acces ac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          eceectric cocceca en concerce de cocceca en concerca e
ACGCCCCCGGGCGCCGACGCCCCCCGGCCATCCCGGGGGATGCGACGGCGCCGGGAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGACGGCACCGCCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cccc---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCGGGACGCGGACCTCGTCCTCGCCCGTACACGAGGACGTGGCCCTCAAGGCCGTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Gallus gallus"
/mol type="genomic DNA"
/strain="Red Jungle Fowl"
/db_xref="taxon:9031"
/clone="CH261-138F22"
/sex="female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /cell_line="UCD001, inbred 256"
/clone lib="CH261"
/clone lib="CH261"
/note="Vector: pTARBAC2.1; Site_1: EcoRI; Site_2: Eco
CH261 Female Chicken library - For library and Clone
ordering information: http://www.chori.org/bacpac"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 126; DB 8;
Pred. No. 1.7e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 486;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1198;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ECORI;
                                                                                                                                                                                                                       1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64
```

```
REFERENCE
AUTHORS
TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 10
AG396765/c
LOCUS
                     Ş
                                                          B
                                                                                            Ş
                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
 멍
                                                                                                                                                            S
                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                            Query Match
Best Local Similarity
Matches 444; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                               845 TCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence.
AG396765
AG396765.1
                                                                                                                                                                                                                                                                                                                                                                                                                                       R.Site 1
R.Site 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and Chemical Research (RIKEN), Genomic Sciences Center (GSC);
1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, J
(B-mail:hattori@gsc.riken.jp, URL:http://hgp.gsc.riken.go.jp/,
Tel:81-45-503-9111, Fax:81-45-503-9170)
Clones are derived from the mouse BAC library MSMg01. For BAC
library availability, please contact Kuniya Abe (abe@rtc.riken
Tsukuba Institude, Bio Resource Center,
The Institude of Physical and Chemical Research (RIKEN) 3-1-1
                                                                                                                                                             σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequencing : LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Koyadai, Tsukuba, 305-0074 Japan
phone: 81-298-36-9189, fax: 81-298-36-9199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hattori, M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AG396765
Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      e-mail: abe@rtc.riken.jp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (17-NOV-2003) Masahira Hattori, The Institute of Physical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hattori,M., Toyoda,A., Noguchi,H.,
BAC end Sequences of Library MSMg01
                               GCCGGACGCC----TGCCTGGTGGGCGACGTCACCGCGCGCGCGCGCCCGAACTCGCGGCC
 GCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCGGGACG
                                                                                                                               (bases 1 to 1692)
                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                       /organism="Mus musculus mu/mol_type="genomic DNA"
/sub_species="molossinus"
/db_xref="taxon:57486"
                                                                                                                                                                                                                                                                                                       /clone="MSMg01-217C03.TJ"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                         /tissue_type="mixture of
/clone_lib="MSMg01 Mouse
                                                                                                                                                                                                                                                                                                                                                                                                        1. .1692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Toyoda, A., Noguchi, H., Kojima, T. and
                                                                                                                                                                                                                                                                                                                                                                                                                                       pBACe3.6
EcoRI
EcoRI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        검
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            molossinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               molossinus
                                                                                                                                                                                                           13.0%;
                                                                                                                                                                                            0,
                                                                                                                                                                                            Score 125.8; DB 9
Pred. No. 1.7e-11;
0; Mismatches 486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1692
DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp DNA linear GSS 03-JUN-2004 clone:MSMg01-217C03.TJ, genomic survey
                                                                                                                                                                                                                                                                         kidney and spleen"
Male BAC Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kojima, T.
                                                                                                                                                                                                                           DB 9;
                                                                                                                                                                                             486;
                                                                                                                                                                                             Indels
                                                                                                                                                                                                                           Length 1692;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sakaki, Y.
                                                                                                                                                                                            12;
                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Japan
1431
                                                               1491
                                                                                               125
                                                                                                                               1551
                                                                                                                                                               ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     jp)
                                                                                                                                                                                            N
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 11
CK209412
                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
           TITLE
                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
Eukarycta; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Pooideae; Triticeae; Triticum.
1 (bases 1 to 1073)
Allard, F., Crosby, W.L., Danyluk, J., Eudes, F., Frick, M., Gaudet, I Genswein, B., Graf, R., Gulick, P., Hrycan, L.D., Laroche, A.,
Links, M.G., McCarthy, E.L., Monroy, A., Muzak, I., Nilson, D.,
Penniket, C., Roach, J.L. and Sarhan, F.
Functional Genomics of Abiotic Stress In Wheat and Canola Crops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           aestivum cDNA,
CK209412
                                                                                                                                                                                                                                                                                                                                                                                                                         CK209412.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CK209412
FGAS021176 Triticum
                                                                                                                                                                                                                                                                                                                                            Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                                                   Triticum aestivum (bread wheat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cedecededecededecededecededecededecededecedede
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AACCTCGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ceaececroeceaececerecerecerececececereces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGGCGACGGCACCGCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  eccerecrecrecines es a secucion de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTACGGCTCACGGCGGAGGAGCACGACCGGACGACGGCCACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cocciococciociócicociócicocciococciócicocciócicocciócicocciócico
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACCCGATGTTCGCCCCCCCCCCCCCCCCATGACCGGCCGACCCGTGGCCCGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGGCGCCCGTGACCCCGGCTCATGCGGCCGGCGCGCCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               agea cege ce reace de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria del maria de la maria del maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria del la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria de la maria della de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGACGGCATGGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GI:39571802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1073
aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FGAS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
/ 5 GATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EST 08-DEC-2003
Triticum
                                                                                                                                                                                                                                                                                                     Tracheophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL COMMENT
                                                         5
                                                                                                                                                      밁
                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               147
           523
                                                                         507
                                                                                                                                                                                                                                                                                                         409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    University of Saskatchewan, Department of Computer Science 1C101 Engineering Building, 57 Campus Drive, Saskatcon, Saskatchewan, S7N SA9, Canada Tel: 306 966 1769

Fax: 306 966 2033

Email: fgas_ests@cs.ugask.ca

Emil: fgas_ests@cs.ugask.ca

This sequence is the direct result of the Base calling software phred (default parameters). It is the raw base calls. To aid in the identification of the high quality insert the software Lucy (default parameters) has been run on this sequence. Lucy identified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      the region [20,195]. Plate: L5B017 row: G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Wm L C
Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
       CATGACCGGCCGACCCGTGGCCGGCCGTCACCGGCCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCCCACGCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCCCCCGCCGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGACCCGGCTCATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGACGTCACCGCGCGGGGCCCGAACTCGCGGGCCGCCCTCCGGGACGCGGACCTCGTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTCTCTCGCCGCGCCGCCGGAGGGCCGGCCGAGCCAAGCCCAAGCCGTGCCCCG-GGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The first mRNA population is from 1cm crown sections after 30 days of cold acclimation. The second is from 1cm crown sections after 11 days of deacclimation (before deacclimation plants were fully vernalized for 49 days). The third is from different developmental stages of spike formation (5 to 50mm) that still have not emerged from the leaf (dissection required). The last is from different developmental stages of spike and seed formation after having emerged from the leaf (visible). First strand synthesis in this library was done in the presence of methylated CCTP thereby protecting from internal cleavage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /mol_type="mRNA"
/db xref="taxon:4565"
/db xref="taxon:4565"
/clone lib="Triticum aestivum FGAS: Library 5 GATE 7"
/clone lib="Tvettor: pCMV.SPORT6; Crown and developmental stages
/note="Vector: pCMV.SPORT6; Crown and developmental stages
of spike formation in wheat cultivar Norstar 4 mRNA
populations were combined before constructing the library.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Triticum aestivum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1. .1073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B017 row: G column:
Location/Qualifiers
                                                                                                                                                          12.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NotI."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Crosby
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 125.2; DB 7;
Pred. No. 2.3e-11;
0; Mismatches 427;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9,
                                                                                                                                                                                                                                506
                                                                                                                                                                                                                                                                                                                                                                                   446
```

밁 á 밁 S 밁 5 밁 S 밁 ર્ 밁 ঠ 밁 ફ 문 S 밁 δ 밁 ક 밁 १ 밁 Ś 밁 S

522

468

408 386 348 326 288 266 228 168

밁

δ

```
RESULT 12
CL090560/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                       Query Match
Best Local S
Matches 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                       Washington University School of Medicine Email: submissions@watson.wustl.edu
Insert Length: 75000 Std Error: 0.00
Seq primer: T7 TAATACGACTCACTATAGGG
Class: BAC ends
High quality sequence start: 591
High quality sequence stop: 665.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         627
                                         al Similarity 47.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    genomic survey sequence.
CL090560
CL090560.1 GI:40584195
                                                                                                                                                                                                                                                                                                                                                                                                                                         Genome Sequencing Center Washington University School
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae; Xenopodinae; Xenopos; Silurana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CL090560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A physical map of the xenopus 
Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kremitzki,C., Carter,J., McPherson,J.,
Mardis,E. and Wilson,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xenopus tropicalis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ISB1-17N15_T7.1 ISB1 Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Richard K Wilson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Xenopus tropicalis
  CCAGCGGTCCAACCCCCGGGCGGCGCTCCGCGGGCGCTCGCCGAGGCCCTGCGC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTGCTGCTCGCCCTGGCCCCGTGTGCTCCGGCGGCAGCCCCGAGGTGTACGGGGACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cceeccccccccccccccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGCACCCTCCACCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGCCAGGACCACTGCCAGGAGCTGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCCCGGCCATCCCGGGGGATGCGACGGCGCCGGGAACCTCGACGGCGTCTTCGGGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCCTTCGCCGCGCTGGTCGACGACGACGCGGACGCCCCCGGGCGCGCGACGCCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ccoccosocicos de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actorio de actori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ccrcecceccrceecerceacerccreecerceseceaceaceaceacececceccacca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cccccccccedeedecccedcceccecceccceccceeccceecccceecccce
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 1821)
                                                                                                                                     /organism="Xenopus tropicalis"
/mol type="genomic DNA"
/db xref="taxon:8364"
/clone="ISB1-17N15"
/clone_lib="ISB1"
/note="Vector: pBeloBAC11; ISB-1
Library Segment 1"
                                                                                                                                                                                                                                                                                 .182
                                                         12.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (western clawed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         942
                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    960
                                    Score 125.2; DB 9;
Pred. No. 2.2e-11;
0; Mismatches 463;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tropicalis genomic clone ISB1-17N15,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tropicalis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               frog)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                            ISB-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Warren, W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genome
                                                                                                                                                          Xenopus
                                         Indels
                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                            tropicalis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Graves, T.,
                                       13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSS 05-JAN-2004
                                       Gaps
    76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             744
                                       2
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                LOCUS
DEFINITION
                                                                                                                                     RESULT 13
CL081011
                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                 멼
                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1744
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      197
                                                                                                                                                                                                                                                                                                                                        844
                                                                                                                                                                                                                                                                                                                                                                               964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77
                CL081011 1218 bp DNA 1
CH216-160116 RM4.1 CH216 Xenopus tropicalis
CH216-160116 genomic survey sequence.
CL081011 CL081011 GI:40536924
GSS.
Xenopus tropicalis (western clawed
                                                                                                                                                                                                                     CGACCCCGCCCG 833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGACGGCACCGCCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCGGGCTCGCCCTCGCCCCGC-----CTCGGCGTCGACGTCCGGGCCCTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2522522525555552552552552552552552552522552552552552552552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GACCACTGCCAG 915
                                                                                                                                                                                                                                                                                                 CTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCCGGAGCTCGCGGCGGGCCAG
                                                                                                                                                                                                                                                                                                                                                                               GACGCCCCGGGCGCGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGCCGGGGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GAGGAGCACGACCGCACGACGCCCACCCCAGGCCCTGACGCCCGTGCTCCTCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGGAGCTCGCGGCCACGC-CCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCTCATGCGGCCGGGCGCGCTGCTCGCCGACACCCCTGTCCGGACGGGCATGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGCGTGGCCCCTGACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCTGGTGGGCGACGTCACCGCGCCCGGGCCCCAACTCGCGGCCCCCTCCGGGACGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GECECEGEGETEGECEGECTCCGCCCGCCGCGCGCCCCCGCCGCCGCAGCCGGCCCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              =
  frog)
                                                                                                                   linear
                                                                                                genomic
                                                                                                GSS 31-DEC-2003 clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1685
                                                                                                                                                                                                                                                                                                   845
                                                                                                                                                                                                                                                                                                                                        903
                                                                                                                                                                                                                                                                                                                                                                               905
                                                                                                                                                                                                                                                                                                                                                                                                                      843
                                                                                                                                                                                                                                                                                                                                                                                                                                                             965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      256
```

밁 Ś В Ś 밁 S В Ş В Ś В Ś

Ś

```
S
                                         S
                                                                밁
                                                                                   S
                                                                                                            문
                                                                                                                                 ঠ
                                                                                                                                                        밁
                                                                                                                                                                          Ś
                                                                                                                                                                                                    밁
                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                     뭉
                     밁
                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BTILL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                           498
                                                                 652
                                                                                       438
                                                                                                             592
                                                                                                                                   378
                                                                                                                                                          532
                                                                                                                                                                              318
                                                                                                                                                                                                                                                  412
                                                                                                                                                                                                                                                                      198
 858
                     712
                                                                                                                                                                                                                                                                                                                                         292
                                                                                                                                                                                                                                                                                                                                                                                     232
                                                                                                                                                                                                                                                                                                                                                                                                                                  405;
                                                                                                                                                                                                                                                                                                                                                               78
                                                                                                                                                                                                                                                                                                                                                                                                            18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Xenopodinae; Xenopus; Silurana.
1 (bases 1 to 1218)
Kremitzki,C., Carter,J., McPher.
Mardis,E. and Wilson,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Seq primer:
Class: BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: submissions@watson.wustl.edu
Insert Length: 175000 Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genome Sequencing Center Washington University School of Medicine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Richard K Wilson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A physical map of the xenopus tropicalis genome Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Xenopus tropicalis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     lass: BAC ends
CGGGCTCGCCCTCGCCCCCCCCTCGGCGTCGACGTCCGGGGCCCTGGCGGCGACGGCACCGCC
                                                                                                                                                        CTTCGTTCTTGCTCGCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCCGTGACCCC 257
                                                                                                                                                                                                                                                                                                                 GGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGGGGACGGCCGGACGCCTG 137
                                                                                                                                                                                                                                                                                                                                                                                    CACGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCGGA 497
                                                                                                            CGCCGCCGGCATGACCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGT
                                                                                                                                                                            GGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCCCC 377
                                                                                                                                                                                                                                                 quality sequence start: 79 quality sequence stop: 190. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /cell_line="Stock 248 F7A2, inbred N7"
/clone_lib="CH216"
/note="Vector: pTARBAC2.1; CHORI-216 Xenopus tropicalis
BAC library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Xenopus tropicalis"
/mol type="genomic DNA"
/strain="Nigerian frog"
/db_xref="taxon:8364"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                clone="CH216-160I16"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . .1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RM4 ctcaagggcatcggtcgagc
                                                                                                                                                                                                                                                                                                                                                                                                                                            12.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Carter, J., McPherson, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 124.6; DB 9;
Pred. No. 2.8e-11;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                 519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Warren, W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                      1218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Graves, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Euteleostomi; 
; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                4.
                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                  437
617
                                                                                                            651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 14
CL476590/c
LOCUS
         ORIGIN
                                                                                                                     FEATURES
                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                   TITLE
JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            772
                                                                                                                                                                                                                                                                                                                                                                                                                                CL476590.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CL476590
                                                                                                                                                                                                                                                           12468722
```

```
SAIL 258 B06.v1 S
SAIL 258 B06.v1,
CL476590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sessions,A., Burke,E., Presting,G., Aux,G., McElver,J., Pat Dietrich,B., Ho,P., Bacwaden,J., Ko,C., Clarke,J.D., Cotton Bullis,D., Snell,J., Miguel,T., Hutchison,D., Kimmerly,B., Mitzel,T., Katagiri,F., Glazebrook,J., Law,M. and Goff,S.A. A high-throughput Arabidopsis reverse genetics system Plant Cell 14 (12), 2985-2994 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: allen.sessions@syngenta.com
ABRC Stock Number CS812057; T-DNA left border flanking sequences
Syngenta Arabidopsis Insertion Library (SAIL) lines are available
through the Arabidopsis Biological Resource Center (ABRC).
Sequences represent a pool of amplified genomic regions and not
single contiguous sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Sessions A
Applied Trait Genetics
Syngenta Biotechnology Inc.
3054 Comwallis Rd., Research Triangle Park, NC 27709, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota, Viridiplantae; Streptóphyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 1267)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thaliana (thale cress)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCCCACCAGGTGCTCGCCCCTCCTGGCCCGTGTGCTCGGCGGCAGCCCCGAGGTGTA 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTGTTCCGCACCCTCCACCGCACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 concecconocide de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la concección de la co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGGGGACATCCAGCGGTCCAACCCCCGGGGCGCGCGTCCGCGGGCGCCCGAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCCCCCCCCCCCCCCCCCNNCCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGCCAGGACCACTGCCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCCGACGCCCCCGGCCATCCCGGGGATGCGACGGCGCGCGGAACCTCGACGGCGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccrecerrectreecececerrespondences
/clone="SAIL 258_B06.v1"
/clone="1b="SAIL Collection"
/note="T-DNA left border sequences
modified TAIL-PCR strategy"
                                                                                                                                                                                                           db_xref="taxon:3702"
                                                                                                                                                                                                                                                           /mol_type="genomic
/ecotype="Columbia"
                                                                                                                                                                                                                                                                                                                                                                 organism="Arabidopsis thaliana"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:45942348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1267 bp
SAIL Collection
, genomic survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Árabidopsis thaliana sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                were
                                                                isolated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GSS 01-APR-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Patton, D.,
                                                     using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  857
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e
F
```

Physical

```
RESULT 15
AG363333/c
LOCUS
                    ACCESSION
VERSION
  KEYWORDS
                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1011
                                                                                                                                                                                                                                                                                                                                                                                                       472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                                                                                                                                                                                    919
                                                                                                                                                                                                                                                                                                                412
                                                                                                                                                                                                                                                                                                                                                         859
                                                                                                                                                                                                                                                                                                                                                                                                                                              799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       259
                                                                                                                                                                                                                          352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    399;
sequence.
AG363333
AG363333.1
GSS.
                                                                                     AG363333
Mus musculus molossinus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGGTGGGCGACGTCACCGCGCGCCGGGGGCCGGCCGCCTCCGGGACGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGTTCCG
                                                                                                                                                                                                                                                                                                                GGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGCCCAGGACCACTGCCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGACGCCCCCGCCATCCCGGGGGATGCGACGGCGCCGGGAACCTCGACGGCGTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGCGCTCCTTCGCCGCGCTGGTCGGCGACCGACCGTGCCGACGCCCCCGGGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               egectroeccroeccecerores en a construction de la con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACGGCCCTGCTGCGCTCGTCGAGGGCCGCCGGCAGGCCCCGTACGGCTCACGGCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCGCCGGCATGACCGGCCGACCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCGTGGCGCCCGTGACCCGG
                                                                                                                                                                                                                          cceccece
                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                    926
                                                                                                                                                                                                                          345
                       GI:47974538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 124.6; DB 9
Pred. No. 2.8e-11;
                                                                                     2332
DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                     clone:MSMg01-165A22.TJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1267;
                                                                                                            linear
                                                                                                       GSS 03-JUN-2004
                                                                                  genomic survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1072
                                                                                                                                                                                                                                                                                                                                                         918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 198
                                                                                                                                                                                                                                                                                                                353
                                                                                                                                                                                                                                                                                                                                                                                                   413
                                                                                                                                                                                                                                                                                                                                                                                                                                              828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                  δ
                                                                                                       밁
                                                                                                                                              Ş
                                                                                                                                                                                               밁
                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 421;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                 1923
                                                                                                                                                                                                                                                                                                                                                                                2043
                                                              440
                                                                                                                                                                                                                                          320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Vector
R.Site 1
R.Site 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (17-NOV-2003) Massahira Hattori, The Institute of Physica: and Chemical Research (RIKEN), Genomic Sciences Center (GSC); 1-7-22 Sushiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:hattori@gsc.riken.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)

Clones are derived from the mouse BAC library MSMg01. For BAC library availability, please contact Kuniya Abe (abe@rtc.riken.jp). Tsukuba Institute, Bio Resource Center, The Institute of Physical and Chemical Research (RIKEN) 3-1-1 Koyadai, Tsukuba, 305-0074 Japan phone: 81-298-36-9189, fax: 81-298-36-9199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mus musculus molossinus
Mus musculus molossinus
Eukaryota, Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequencing : TJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hattori, M., Toyoda, A., Noguch
BAC end Sequences of Library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 e-mail: abe@rtc.riken.jp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hattori, M., Toyoda, A., Noguchi, H., Kojima, T. and Sakaki, Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIMERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ecaeccecacercercercerceracceccececeeacececacecree
                                                                                                                                                                                                                                                                                         TGGGCGAÇGTÇAÇCGÇGCGGGGCCCGAACTÇGCGGCCGCCCTCCGGGAÇGCGGAÇÇTÇG
                    CGGCCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCCGTACGGCTCACGGCGGAGG
                                                                                                         CCGCCGGCATGACCGGCCGTGGCCGCCGTGGTCACCAGGGACGGGCCGGGCGTCA
                                                                                                                                                                                                 AGCTCGCCGCCACGCCCCCGGCGTCCAGCACGTGGGCCTCAACCCGATGTTCGCCCCCG
                                                                                                                                                                                                                                                                                                                                    TCATGCGGCCGGGCGCTGCTCGCCGACACCCTGTCCGGTCCGGACGGGCATGGCCGCGG
                                                                                                                                                                                                                                                                                                                                                                              TCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCCG---TGGCGCCCGTGACCCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 2332)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="Mus musculus mol
/mol_type="genomic DNA"
/sub_species="molossinus"
/db_xref="taxon:57486"
/clone="MSMg01-165A22.TJ"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .2332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tissue_type="mixture of kidney and spleen"
/clone_lib="MSMg01 Mouse Male BAC Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       : pBACe3.6
: EcoRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EcoRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 124.4; DB 9
Pred. No. 2.8e-11;
0; Mismatches 436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Noguchi, H., Kojima, T. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MSMg01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                molossinus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                436;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sakaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ა
•
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
```

밁 Ş 밁 Ś 밁 á 밁 δ 밁 Ş В δ 밁 Ś В Ś 밁 Ś 밁 Ş 밁 Ś В δ 밁 Ś 밁 Ś 밁 á

1744 499 1804 439 1864 1924

379

1984

259

319

2044

202

2104

음 성

920 1325	860 1385	800 1445	740 1504	680 1564	620 1624	560 1683	500 1743
TGTTCCGCACCCTCCACCGCAC 941	GGGAACTCCGCCGGCTCATGGGACCCGGAGCTCGCGGGCGG	CCGACGCCCCGGCCATCCCCGGGGGATGCGACGCGCGGGGAACCTCGACGGCGTCTTCG 859	TGCGCTCCTTCGCCGCGCTGGTCGGCGACCGACCGCGGACCGTGCCGACCCCCCGGGCGCGCG 799	GGGACATCCAGCGGTCCAACCCCCGGGGGGGGTCCGCGGGGGGCGTCGCCGAGGCCC 739	CCCACCAGGTGCTCCTCGCCCCTGGCCCGTGTGCTCGGCGGCAGGCCCCGAGGTGTACG 679	GECTCGCCCTCGCCCTCGGCGTCGACGTCGAGGCCCTGGGCGGCGACGGCACCGCCGC 619	AGCACGACGGACGACGGCGGCCAGGCCCTGACGCACGCCGTGCTCCTTCCT

8 8 8 8 8 8 8 8 8 8 8 8 8

Search completed: October 5, 2005, 09:01:18 Job time: 3671.67 secs

This Page Blank (uspto)

```
Command line parameters:

-MODEL-frame+ p2n.model -DEV=xlh
-Q=/cgn2 1/USPTO_epool h/US10089514/runat_04102005_105744_8033/app_query.fasta_1.1621
-Q=/cgn2 1/USPTO_epool h/US10089514/runat_04102005_105744_8033/app_query.fasta_1.1621
-DB=GenEmbl -QFMT=fastap_-SUFFIX=rye_-MINMATCH=0.1 -LOOPCI=0 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXIEN=200000000
-USER=US10089514_eCGN 1_1_8782_erunat_04102005_105744_8033 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-PGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                        Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                       Score
     1635
1635
1635
1588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-6
1635
1 MSGFPRSVVVGGSG
     100.0
100.0
100.0
97.1
                                                                                       Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenEmbl:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BLOSUM62
                                                                                                          Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4708233 seqs, 24227607955 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               October
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSGFPRSVVVGGSGAVGGMF.....HCQELFRTLHRTDDEGEKDR
                                                                                                                                                                                                                                       gb_pl:
gb_pr:
gb_sr:
gb_sr:
gb_sr:
gb_sr:
gb_sr:
gb_sr:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                   gb_htg:*
gb_in:*
                                                                                                                                                                                                                                                                                                                                                                              gb_pat:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gb_ba:*
                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                  0 : *
   969
969
5251
14159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5, 2005, 05:31:11; Search time 4767.69 Seconds (without alignments) 3272.568 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GenCore version 5.1.6 (c) 1993 - 2005 Compugen
                                                                                        BB
   BD178315
BD093916
AB116234
AF262220
                                                                                                                                          SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.5
7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9416466
BD178315 Transform
BD093916 Transform
AB116234 Streptomy
AF262220 Streptomy
                                                                                       Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                00000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0000
```

3 21 4 21 5 21	$\mathbf{\mu}$	9 8 22	7 6 b 22 22	υ 4. ι	20 1-	. 0 .	. α	7	σ υ	44.1	ω	NI		ο ο	8 23	7 23	6 23	4. 6	ω	2	1	0	66	66	66	6	ص ص
999	224 224 9.5	ហហ	5.5	30	30	33	(L	33	ω u	. ω	35	37	37	37	7.5	7.5	7.5	9 6	72	23	82	82	1.5	1.5	1.5	5	1.5
. 4 4 2 2 1	.7 .7 3			40.	بن بر س		نــ	·ω	i			5 6		'n	.5 3	-	ຫ່ວ		٠	B	4. W		5	5 0		5	
10 20 90	39 499 110	3434		ino	400	9	4509	23	1	25		90	203 727	032	0002	7405	21387	886	218	419	4998	4994	74	2888	88	∞ (œ
2 2 2																									ο (ο (v
BX936398_10 AJ414156 AE017128	CQ872837 CQ873160 AE013693	FAG	AK387843 ERWTYRA AX457135	BX950851_37 AE015580	AE00096_27	D90888	ECOPHEAR	AX343931	AX457133	AR271569_09	U67509		AB005490 AP002562	28	AE016842	AL627276	AE008821	AE013358	AE011181	1037	7090	X57187	6041	R198	323	198	A48324
inuation (11 4156 Yersini 7128 Yersini	837 Sequer 160 Sequer 693 Yersir	420 Erwina he 133 Erwinia h	AR387843 Sequence M74135 Erwinia her AX457135 Sequence	nuation 580 She	Continuation (28 o AE000923 Methanoba	(E) (E)	AX41//16 Sequence	AX343931 Sequence	AE016/64 ESCHETION AX457133 Sequence	Continuation (10 o	thano	Shigella	AE005490 Escherich AP002562 Escherich	Shigella	Salmonel	Salmonel	AE008821 Salmonell	Methanos	Methano	10371 Methanop	70909 S	571871 Photorha	17 Streptomy	198353 Sequenc	323 Seguence	198354 Seque	A48324 Sequence 2

ALIGNMENTS

ACCESSION BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
ACCESSION DEFINITION the same and novel biosynthetic gene.
ACCESSION BD178315
BD178315
BD178315
ACCESSION BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD178315
BD17

```
Ś
          Ş
                            문
                                          5
                                                               В
                                                                             Ş
                                                                                               밁
                                                                                                                                       밁
                                                                                                                                                   δ
                                                                                                                                                                     망
                                                                                                                                                                                        Ş
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-6 (1-322) x BD178315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                601
                                                                                                   541
                                                                                                                                                       161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scores:
                            661
                                             221
                                                                                  201
                                                                                                                    181
                                                                                                                                        481
                                                                                                                                                                          421
                                                                                                                                                                                            141
                                                                                                                                                                                                              361
                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                   101
                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                            41
                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                                                                                                                  \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                    μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유표유
                                    GlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg
                                                                                                            AlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeu
                                                                                                                                                                         _6
                                                                                                                                                                                                                                                                                                                                                                                                                                 MetSerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPhe
ArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArg
                                                               GCCGTGCTCCTCCTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGCCCTG
                                                                                                                                                 ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis
                                                                                                                                                                                                                       AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr
                                                                                                                                                                                                                                                          ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                               GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                       AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro
                                                                                                                                       GTACGGCTCACGGCGGAGGAGCACGACGGACGACGCCACGCCAGGCCCTGACGCAC
                                                                                                                                                                                                             AACCCGATGTTCGCCCCCCCCCCGCCGCATGACCCGCCGACCCGTGGCCGCCGTGGTCACC
                                                                                                                                                                                                                                                 CGGACGGGCATGGCCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                          GGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                    yArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C12R1:645)
Transformant producing PF1022 substance producing the same and novel biosynthetic gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and
Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Streptomyces venezuelae"
/mol_type="genomic DNA"
/db_xref="taxon:54571"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
(1)..(966).
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2e-62
1635.00
100.00%
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-969)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ဌ
                                             240
                                                                                                  600
                                                                                                                                       540
                                                                                                                                                        180
                                                                                                                                                                         480
                                                                                                                                                                                            160
                                                                                                                                                                                                             420
                                                                                                                                                                                                                              140
                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                      100
                                                                                                                                                                                                                                                                                                                                         80
                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                              120
                           720
                                                               660
                                                                                 220
                                                                                                                    200
                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                40
                                                                                                                                                                                                                                                                                                                                                                                                                                60
```

```
RESULT 2
BD093916
LOCUS
                                                                                                                                                                                                  Alignment :
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
KEYWORDS
SOURCE
                Ş
                                           밁
                                                                    Ś
                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                               DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                   US-10-089-514-6 (1-322)
                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                          Transformants that produce secondary metabolites modified by a functional group(s) and novel biosynthesis genes

L Patent: WO 0123542-A 3 05-APR-2001;
MEIJI SEIKA KAISHA LTD, KOJI YANAI, KAORU OKAKURA, SHOHEI YASUDA,
MANABU WATANABE, KOICHI MIYAMOTO, NAOKI MIDO, TAKESHI MURAKAMI

Streptomyces venezuelae
PN WO 0123542-A/3
PD 05-APR-2001
PF 29-SEP-2000 WO 2000JP006783
PR 29-SEP-1999 JP 99P 276314
PI KOJI YANAI, KAORU OKAKURA, SHOHEI YASUDA, MANABU WATANABE, KOICHI
PI MIYAMOTO,
PI NAOKI MIDO, TAKESHI MURAKAMI
PC C12N15/09, C12N5/10, C12P21/02, C07K11/00// (C12P21/02, C12R1:645)
FT CDS

Location/Qualifiers

FT CDS

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            721
                21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomycineae; Streptomycetacea 1 (bases 1 to 969)
Yanai,K., Okakura,K., Yasuda,S., and Murakami,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Streptomyces venezuelae
Streptomyces venezuelae
Streptomyces venezuelae
Bacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BD093916
Transformants that
functional group(s)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO 0123542-A/3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BD093916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GACCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro|
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThrAspAspGluGlyGluLys
                                           MetSerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGAGGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTCGTCGGCGACGACCCGGACCGT
                                                                                                                                                                                                                                                                                                          Location/Qualifiers (1)..(966).
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             322
                                                                                                                                                                                                                                                     /organism="Streptomyces
/mol_type="genomic DNA"
/db_xref="taxon:54571"
                                                                                                                               2e-62
1635.00
100.00%
100.00%
100.00%
                                                                                                  x BD093916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           969 bp DNA linear produce secondary metabolites and novel biosynthesis genes.
                                                                                                   (1-969)
                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                             Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Watanabe, M.,
                                                                                                                                                                                                                                                                                    venezuelae"
                                                                                                                               969
0 222
0 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Miyamoto, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PAT 27-
modified
                                                                                                                                                                                                                                                                                                                                                                                                                 WATANABE, KOICHI
                                                                                                                                                                                                                                                                                                                                                                         C12R1:645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -AUG-2002
| by a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mido
                                           60
                 40
                                                                       20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             780
```

```
RESULT 3
AB116234
LOCUS
DEFINITION
               ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                    901
                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                                                                                     321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                             AB116234 STEPS THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF
                 Streptomyces venezuelae
                                                                                     dehydrogenase, 4-a protein, complete AB116234
                                                              AB116234.1
                                                                                                                                                                                                                                                                                                                                        AspArg
                                                                                                                                                                                                                                                                                                                                                                                                                             GlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThrAspAspGluGlyGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCGACGCCCCGGGCGCCGACGCCCCCGGGCCATCCCGGGGGATGCGACGGCGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGGGGCCCGGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                       GACCGA
                                                                                                                                                                                                                                                                                                                                                                                                       CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGAAGGCCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cegecercecegaegecerecricececececeregreegedacecegaecegreege
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTACGGCTCACGGCGGAGGAGCACGACCGACGGCCGACCCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGCGCCCGTGACCCGGCTCATGCGGCCGGCCGCCGCCCGGCCGACACCCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGTGCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACCCGATGTTCGCCCCCCCCCCCGCCGCCATGACCCGGCCGACCCGTGGCCGCCGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGGACGGGCATGGCCGGGAGCTCGCGGCCCACGCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                       966
                                                                                                                                                                                                                                                                                                                                                     322
                                                              GI:47846865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ceeecrceccrceccrceccrceecerceAcercceeeccre
                                                                                                                                                                                                                                                                                                                                                                                                                                                    320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                       960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                           SGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Yanai,K., Sumida,N., (Murakami,T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (01-AUG-2003) Koji Yanai, Meiji Seika Kaisha, Microbiological Resources and Technology Laboratories; Odawara-shi, Kanagawa 2500852, Japan (E-mail:koji yanai@meiji.co.jp, Tel:81-465-37-5106, Fax:81-465-37-6397)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptomyces venezuelae
Bacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       engineered with genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Para-position derivatives of fungal anthelmintic cyclodepsipeptides engineered with Streptomyces venezuelae antibiotic biosynthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Murakami,T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Yanai,K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5184904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Biotechnol.
                                                                                                                                                                                                                                                2708. .3676
/gene="papC"
2708. .3676
2708. .3676
2708. .3676
/gene="papC"
/codon_start=1
/codon_start=1
/evidence=experimental
/transl_table=11
/transl_table=11
/product="4-amino-4-deoxyprephenate dehydrogenase"
/product="4-amino-4-deoxyprephenate dehydrogenase"
/protein_id="BAD21141.1"
/db_xref="gi: 47846867"
/db_xref="gi: 47846867"
/translation="MSGFPRSVVVGGSGAVGGMPAGLLREAGSRTLVVDLVPPPGRPD
/translation="MSGFPRSVVVGGSGAVGGMPAGLLREAGSRTLVVDLVPPPGRPD
ACLVGDVTAPGPELAAALRDADLVLLAVHEDVALKAVAFVTRLMRPGALLADTLSYRT
GMAAELAAAAPGVGHVGLNEMFAPAAGMTGRPVAAVVTRDGFGVTALLALARV
VRLTAEEHDRTTAATQALTHAVLLSFGLALARLGVDVRALAATAPPPHQVLLALLARV
LGGSPEVYGDIORSWERAASARRALAEALAEATAFPALVGDDPRADAPGRADAPGHPGGC
LGGSPEVYGDIORSWERAASARRALAEALAEATAFPALVGDDPRADAPGRADAPGHPGGC
/gene="papA"
/codon start=1
/evidence=experimental
/transl_table=11
/product="4-amino-4-deoxychorismate 8)
/protein_id="BAD21140.1"
/db_xref="GI:47846866"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MRTILIDNYOSPTHNLFQYIGEATGQPPVVVPNDADMSRLPVED
FDAIVWSPGPGSPDRERDFGISRRAITDSGLFVLGVCLGHQGIAQLFGGTVGLAPEPM
HGRVSEVRHTGEDVFRGLPSPFTAVRYHSLAATDLPDELEPLAMSDDGVWGLRHREK
FLMGVQFHPESIGSDFGREIMANFRDLALAHHRARRHGADSPYELHVRRVDVL-PDAEE
VRRGCLPGEGTTFMLDSSVLEGASRRSFLGLDRGFHAEXLYFYRADGVVSVRGSDGT
TTRTRRPFFNYLEEQLERRRVPVAPELPFEFHLGYVGYLGYELKAETTGDPAHRSPHP
DAAFLFADRAIJALDHQEGCCYLLÁLDRRGHDGDARAMLRETASTLTGLAVRAPAEPTP
DAAFLFADRAIJALDHQEGCCYLLÁLDRRGHDGDARAMLRETASTLTGLAVRAPAEPTP
ANVFGIPEADRAIJALDHGEGCCYLLÁLDRRGHDGDARAMLRETASTLTGLAVRAPAEPTP
ALPLYSALRAILSPVPYGALLEFPELSVLSASPERFLTIGAGGVESKPIKGTRPRGGT
AEEDERLRADLAGREKORAENLMIVDLVRNDLMSVCAIGSVHVPRLFSVETYAPVHQL
VSTIRGRLRPGTSTAACVRAAFPGGSMTGAPKRTMSIIDRLESGFBGVYSGALGWFA
VSTIRGRLRPGTSTAACVRAAFPGGSMTGAPKRTMSIIDRLESGFBGVYSGALGWFA
VSTIRGRLRPGTSTAACVRAAFPGGSMTGAPKRTMSIIDRLESGFBGVYSGALGWFA
VSTIRGRLRPGTSTAACVRAAFPGGSMTGAPKRTMSIIDRLESGFBGVYSGALGWFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Streptomyces
/mol_type="genomic DNA"
/db_xref="taxon:54571"
651. .2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LSGAADLSIVIRTIVLADGQAEFGVGGAIVSLSDQEEEFTETVVKARAMVTALDGSAV
AGAR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="papA"
651. .2711
                                                                                                                                                                                                                                 DGAGNLDGVFGELRRLMGPELAAGQDHCQELFRTLHRTDDEGEKDR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sumida, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22 (7), 848-855 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Okakura, K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Okakura, K., Moriya, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Moriya, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Watanabe, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Watanabe,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      synthase"
                                        mutase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kayama,
```

```
밁
                      Ś
                                                    밁
                                                                          Ś
                                                                                                         문
                                                                                                                                 Ś
                                                                                                                                                             망
                                                                                                                                                                                     ş
                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-089-514-6 (1-322) x AB116234 (1-5251)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.:
                                                                                                         3128
                                                                                                                                                                                                                                                                                                                                                                                                                                       2768
                                                    3188
                                                                                                                                                               3068
                                                                                                                                                                                                                    3008
                                                                                                                                                                                                                                                                          2948
                                                                                                                                                                                                                                                                                                                              2888
                                                                                                                                                                                                                                                                                                                                                                                  2828
                                                                                                                                    141
                         181
                                                                              161
                                                                                                                                                                                          121
                                                                                                                                                                                                                                              101
                                                                                                                                                                                                                                                                                                   81
                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                            41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                          ValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal
                                                                                                                                                                                                                                                                                                                             GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                           AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla
                                                                                                                                                                                                                                                                                                                                                                                               GlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetSerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPhe
              AlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeu
                                                                   ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis
                                                                                                                         ArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgPro
                                                                                                                                                               AACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGTGGTCACC
                                                                                                                                                                              AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr
                                                                                                                                                                                                                                                                         GTGGCGCCCGTGACCCGGCTCATGCGGCCGGCGGCGCGCTCGTCCGACACCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                    GGACGGCCGGACGCCTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCCGTGCTCCTCTCGGGCTCGGCCTCGCCCGGCGTCGACGTCCGGGCCCTG
                                                    GTACGGCTCACGGCGGAGGAGCACGACCGGACGGCCGCCACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                    CGGACGGGCATGGCCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                    ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /Codon_start=1
/codon_start=1
/codon_start=1
/codon_start=1
/codon_start=1
/codon_start=1
/transl_table=11
/transl_table=11
/transl_table=11
/product="hypothetical protein"
/protein_id="BAD21143.1"
/protein_id="BAD21143.1"
/db_xref="GI:47846869"
/translation="WHATTILAALTGRTAAQQPYWPDPDAVDTVERELAGLPVLTPED
EVVDLMNGMALVARGAALLVQGGDCAERFHEAVPDLVRRKVDNLQGLAAIMRAGSGLP
AVALGRIAGQYGKPRSSPFETEESGAGRKMPSYCGDAVNBPEFFEPARTPEBPRLLTA
YTCSGIVULDBIRRSWSGRPVLERVYTSHELLLLPYERFLVREGAHGYTSGSAHFGWIG
ERTRREDGAHVALAQAVHNPVGVKLGPTVSPEDAVALSRSINPEGVFGRLTFIVRFGA
KEUDELLPPVVRAVAHGAPVVWLCDPMHGNGLKLAGHKTRLIEPMRAETAAFVRTLR
EHGQWPAGLHLELTPDPVTECVSELDRPPRFTDYRSTCDPRLNPEQSADMVTHFLSIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="ORFIV"
4065 .5243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4065.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db_xref="GI:47846868"
/translation="MTEQNELQRLRAELDALDGTLLDTVRRRIDLGVRIARYKSRHGV
PMMQPGRVSLVKDRAARYAADHGLDESFLVNLYDVIITEMCRVEDLVMSRESLTAEDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene="ORFIV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9.25e-62
1635.00
100.00%
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5251
322
0
0
                                                                                                         3187
                                                                                                                                                               3127
                                                                                                                                                                                                                   3067
                                                                                                                                                                                                                                                                                                                              2947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2767
3307
                                                    3247
                                                                                                                                    160
                                                                                                                                                                                       140
                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                       3007
                                                                                                                                                                                                                                                                                                   100
                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                  2887
                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                               40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                               REMARK
                                                                                                                                                                                                    REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 4
AF262220
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                    Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      201
```

```
3668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       He,J., Magarvey,N., Piraee,M. and Vining,L.C.
The gene cluster for chloramphenicol biosynthesis in Streptomyo venezuelae ISP5230 includes novel shikimate pathway homologues a monomodular non-ribosomal peptide synthetase gene Microbiology 147 (Pt 10), 2817-2829 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14159 bp DNA linear B Streptomyces venezuelae chloramphenicol biosynthetic partial sequence.
AF262220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Streptomyces venezuelae
Streptomyces venezuelae
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                           St, Halifax, NS B3H 4J1, Canada
Sequence update by submitter
On Jun 5, 2001 this sequence version
Location/Qualifiers
                                                                                                                                                                                                                                                                       Submitted (05-JUN-2001) Biology, St. Halifax, NS B3H 4J1, Canada
                                                                                                                                                                                                                                                                                                              He,J., Magarvey,N.A. and Vining,L.C. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                               Submitted (01-MAY-2000) Biology, St, Halifax, NS B3H 4J1, Canada
                                                                                                                                                                                                                                                                                                                                                                                                                        He,J., Magarvey,N.A. and Vining,L.C. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptomycineae; Streptomycetaceae; Streptomyces. 1 (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21461106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF262220.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11577160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThrAspAspGluGlyGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Asparg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCGACGCCCCCGGGCGCCGACGCCCCCCGGCCATCCCGGGGGATGCGACGGCGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AACCTCGACGGCGTCTTCGGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGC
                                                                                                                                                                                                                                                                                                                                                         Halifax, NS B3H 4J1, (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 14159)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      322
                                                                                                     /mol_type="genomic DNA
/strain="ISP5230"
/db_xref="taxon:54571"
                                                                                                                                              /organism="Streptomyces/mol type="genomic DNA"
/codon_start=1
/transl_table=11
                                                                                  /map="adjacent to
                                         function="essential for
                                                                                                                                                                                            l. .14159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:14290414
                                                                                  pabAB"
                                                                                                                                                                      venezuelae'
                                                                                                                                                                                                                                                                                               Dalhousie University,
                                                                                                                                                                                                                                                                                                                                                                                                     Dalhousie University,
                                           chloramphenicol biosynthesis"
                                                                                                                                                                                                                                replaced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BCT 09-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene cluster,
                                                                                                                                                                                                                                                                                                                                                                                                     1355 Oxford
                                                                                                                                                                                                                                                                                                 1355 Oxford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          260
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                              US-10-089-514-6 (1-322) x AF262220 (1-14159)
                                                                                                                                                                                                                                    Score:
                                                                                                                                                                                                                                                          Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SgS
1 MetSerGlyPheProArgSerValValGlyGlySerGlyAlaValGlyGlyMetPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MELPDL/TDLFRRHRGRTALRTAGRTWTYEELDRVTSALARRID
AECPACRRUL/VAGEHTAEAV/WALLAMRSHAVHTPMNPGLPADRAETEFARVADAALLV
CFEREALVRGEKAGLRALYAGDVGWPTDPAPAPADTADEPARSRVAYSIFTSGSTGD
PKLVDVGHGGLLINLCRSLRRLLDITEDDQVLHPASLSPDASVSEILGTLYAGATLVVP
VRDQASWLGSVSRHLAAHGCDLAMLSPSVYARLDEAARSRIRKVEFCGEALGEGEYDK
AARYSRVFNAYGPTEATVCFSLAEITSYTPSIGTPWDFRAYVRDPDSGDHATAGTGE
LVI VGDGVALGYAGGSPAENEVGTVDGSPAYATGDVVSLSDDGELTYLGRIDEQIKR
LGHRVNLAHVGSTLSRHLGREVALVRQDATILLVTAADGEATEESLMARIRDLVPVWE
APDRLVLVDALPLTSGGSVDRSALRELLASPAGABHGGTDGEDAAELRRVLDVTAVL
GQEIGPETSIFDAGGSSLAMIQIQVKLSDAYGEEAVEAAFAAMDYDFAPAAFLRHLRG
EAVAPAESAVDTLLRRVETERDALRAELPLARRDTRHEFVPGAADGRSVLTGASGF
IGGHVLDRLLAAGREVLVSTGDEDGVLTGHATRFGRQAADYARVRAISYAELERWVD
RRRGPVVDAVHCGYQVNHLLPLDSHLSGSVRTALVRTALVGASAGAAFLARAGAGARSPAFTALLETAARGAFLLSGSVSTATLAVGASAGATARVDDYSRSKLISEESVNTLAVLGAVGHYRPGLVYGHRPEDRHHL
KDDWFTALLETARRVGAMPRLSGHVPVCCVGTLADTLLGRDANPGTADGASRTPDSR
SAVVVHRTYALDELLHTGLTEADVLAPAMFERVRDGGEVPAPLLAMQAALSGFGW
BEAVHERUNGLIG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="MTAGSPGPAGRTPLRPRALAVRDIHSFLADLGMDCDVNPCTAFV
GTVEPGRVEDPAMREFVARLGLTRALADLVEVAEEDVVVTLDEPRGPVEGGPAELAD
LVTAYHNSRPLRIDEAVRLAYMRTDGEYLVFVKFSHLIVDLADVVDLLGIRAHLRG
DTPPGRLGSRYKHHARTVEQYTALPAADPAEVTRALGELPVPGRKGIFTISASVEEN
ELREGVTFDELLSAVTGVLLPALGGGLVLQYPYSRWEFATKGGYYVEIKPLVVRPGLP
PLREGVTFDELLSAVTGVLLPALGGGLVLQYPYSRWEFATKGGYYVEIKPLVVRPGLP
                                                                                                                                                                                                                                                                                                                                                                                   /note="Region: thiolation domain"
5343. .5375
                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Region: 5043. .5075
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="Region: adenylation domain A7"
4647. .4706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3708. .3746
/note="Region: adenylation domain A2"
3939. .3986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PSAHREVDHDILGRLLGTPPDTPAGDRPERTGTTSRGPERRRPRADTALTGTEP" 3576 3596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3498. .6404
/note="non-ribosomal peptide synthetase; contains
reductase-like domains near C-terminus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SDYTPEYFAKTRHAQESLGRFTMSDLDAFARAFTSGRMPRVVVSDTTFMRPEPDRWRW
VPVRSARVFEDLKFLADRSWPGPPLLRMQYKRGFLSPGAAADVLDGLKQRIGASGGTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="Region: adenylation domain A9" 4893. .4910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Region: adenylation domain A8"
4833. .4853
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="Region: adenylation domain A6"
4593. .4610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4494. .4538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4350.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4089. .4100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /trans<u>T</u> table=11
/product="CmlH"
/protein_id="AAG21975.2"
/db_xref="GI:14327897"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="Region: adenylation domain A4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Region: adenylation domain Al"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="AAG21974.1"
/db_xref="GI:10716944"
                                                                                                                                                                                                                                                                                                                                                        'note="Region: NADH binding site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'note="Region:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="Region: adenylation domain A3"
                                                                                                                                                   2.38e-59
1588.00
96.65%
96.04%
97.13%
                                                                                                                                                                                                                                                                                                                                                                                                                                                            adenylation domain A10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      adenylation domain A5"
                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                           14159
315
2
5
6
                            20
KEYWORDS
                     Atoset.
                          OT: 730711
```

Ś

RESULT 5 A48324 LOCUS DEFINITION ACCESSION VERSION	Ο _γ	1 4d	Qγ 1	Qy 1	Qy Db 1	Qy Db 1	Qу ДЬ 1	Оу Db 1	Оу рь 1	Qy Db 1	Qу ДЪ 1	Qγ Db 1	Qy Db 1	Qу ДЪ 1	Qу Db 1	Qу рь 1	Db 1
* * * * *	315 1119	295	275 0999	257 0939	241 0879	221 0819	201 0759	181 0699	161 0639	141 0579	121 0519	101 0459	81 0399	61 0339	41 0279	21 0219	0159
148324 Sequenc 148324 148324	AspA GACG	CCGG 	Glycy GGATG	ecce	ArgA	GLys GGCA	AlaA GCGG	Alav.	Vala:	ArgAsı AGGGA	AsnP AACC	ArgThro	ValAl GTGGC	AlaI GCCC	GlyA GGAC	Alag	ATGA
.1 G	spGlu acgaa	luLev AGCTC	ନୁ_ଞ୍ଚ	CGAGGAC	laLeuA	erPro	laThr CGACG	alLeu ::: TGATC	rgLeuTl GGCTCA	spGly ACGGG	roMe	hrel)	laPro CGCCC	euArc TCCGC	ArgPro	96-17-	GCGG
from	AspGluGlyG] ACGAAGGCG <i>I</i>	GluLeuAlaAl GAGCTCGCGGG	apGlyA	ProA		GAGG	Alap GCAC	CTCT 	# <u></u>		t PheAl	/MetA	laProValThr <i>i</i> GCCCGTGACCC	JASPA GACG	DASPA GACG	LeuA	TTCC
Pate	luLysa agaagg	laGlyG CGGGCQ	lagly/ CCGGG/	SpArg ACCGC	laGluAla CGAGGCC	alTyr TGTAC	roPro GCCG	erPhe	laGlu CGGAG	ProGlyValThrAla CCGGGCGTCACGGCC	laProAl ccccccc	laAla CGCG	<u>й—</u> й	laAsp CGGAC	lacys	euLeuArgGluAl rgCTGCGGGAGGC	cccc
nt WO	ACC	GlnAspHi AGGACCA	AsnLe	pargalaas ::::::::::::::::::::::::::	3=2	G1yAs	ProHi	GlyLe	laGluGluHi GGAGGAGC	ThrAl	AlaA GCCG	GAGC:	JLeuMetArc	CTCG	CTGG	AlaGlySe GCGGGCAG	AGCG
888 b	rg 322 GA 111		yAsnLeuAspGlyVa AACCTCGACGGCGT	\spAlai	auArgSer) GCGCTCC	SpIle	sGln CCAG		isasp acgac	CTG 	laAlaGlyMet ccGccGGCATC	PuAla 	t ArgP	alLeu CCTG	algly GGGQ	YSer 	CGTC
901.	2	CysG1	Glyva GCGT	Prod.	PheÁl	GlnArgi CAGCGG	Valle GTGCT	LeuÁl CTCGC	ArgTh	LeuAr CTGCG	MetŤh ATGAC	GlyMetAlaAlaGluLeuAlaAlaHisAla 	ProGly/ cceecc	LewAl	AspVa GACGT	Argin	GECTO
DNA		lnGlui 'AGGAGC	CIT P	lyargal: accgcac	laAlaLeuVa CCGCGCTGAT	CC = Ser	euLeuA TGCTCG	aArg	Thral	LeuArgLeuValGluGlyGlyGlyArg 	MetfhrGlyArgE aTGACCGGCCGGC	sAlap cccc	yAlaI CGCGG	laLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAl 	ProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAl 	erArgThrLeuValVal 	ATGAGCGGCTTCCCCCGGAGCGTCGTCGTCGGCGGCAGCGGAGCGGTGGGCGGC
L		nGluLeuPhe <i>I</i> 	Hyglı - AGGA	ରୂ—≱	euVa :: TGAT	AsnPr		LeuGl	중 <u></u> A	/algl	rgPr	8=8	TIGCT	iisGl CACGA	AlaPr 3CGCC	/alva }TCGT	1GCGG
inea		6 <u> </u>	eGlyGluLeuArc 	spalaP	/alGlyAs ::: \TCGGCGA	OArgA CCGGG	euLeuA TCCTGG	YVala CGTCG	aThrG GACCC	uG1 yG - - - - GGGCG	ProValA.	GlyValGlnHisValGly GCGTCCAGCACGTGGGC	AlaLeuLeuAlaAspThrLeuS GCGCTGCTCGCCGACACCCTGT	uAspV GGACG	oglyF 	ValAspLeuValPr TCGACCTCGTACC	AGCGG
ra ra		ThrLeuHi		aProGlyHisPi CCCGGCCATCC	BP ACGACC	laala CGGCG	S=#	spVal	lnAla AGGCC	TyG1)	6 = E	InHis HIII	acacc	alala TGGCC	rogl	euVa]	TGGG
AT 0		요=\$	CICE	Hisp CATC	CCGGA	SerA TCCG	rgVall GTGTGC	ArgA ::	LeuTh	GI YA	lavalval: ccgrggrc/	Wald	CLeuSe	LeuL	TLeuA	LProp	CGCA
7-Mar		rgThr 	MetGly	roGly	ACCGC	laArg	euGly	laLeu CCCTG	hrHis CGCAC	rgPro GGCCC	alThr TCACC	lyLeu GCCTC	erVal CCGTC	YSAla AGGCC	laAla CGGCC	CGCCG	ATGTTC
-1997		314	294	274	256	108	220	200	180	160	140 105	120	100	103	103	102	102
7		8	8	98	38	78	18	58	98	38	78	18	58	98	38	78	18

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
   뭐
                            Ś
                                                           밁
                                                                                    á
                                                                                                                     밁
                                                                                                                                            Ś
                                                                                                                                                                                밁
                                                                                                                                                                                                         á
                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-6 (1-322) x A48324 (1-888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
   610
                             200
                                                                                         180
                                                                                                                                                    160
                                                                                                                                                                                  430
                                                                                                                                                                                                                                                                                                    310
                                                                                                                                                                                                                                                                                                                                                                 250
                                                                                                                                                                                                                                                                                                                                                                                                                           190
                                                                                                                                                                                                                                                                        120
                                                                                                                                                                                                                                                                                                                                   100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     130
                                                                                                                                                                                                                                                                                                                                                                                           80
                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREPTOGRAMINES AND METHOD FOR PREPARING PATENT: WO 9601901-A 2 25-JAN-1996; RHONE POULENC RORER SA (FR) Other publication AU 2891295 960209 Other publication FR 2722210 960112.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptomycineae; Streptomycetaceae; Str.
(bases 1 to 888)
Blanc, V., Thibaut, D., Bamas-Jacques, N.,
Barriere, J., Debussche, L., Famechon, A.,
Dutruc-Rosset, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomyces pristinaespiralis
Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
Streptomycineae; Streptomycetaceae; Streptomyces.
               LeuAlaAlaThrAlaProProHroHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                            HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                        ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                   ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                                                                             LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                  AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                                                     GTGGTGGAGATGCCGGCGCGCGCGCACGACGACGACCTGACCGCCGCGCAGCAGCCACGCCACG
                                                                                                                                                                                GTCACCGACGGGCCCGGTGTGCGGGGCCCTGGTGGAGCTGGCCGGGTGGGGGGGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                        GCGGCGCTGGCGGACGTGGTGGTGGTGGCGGTGCCGGAGCCGGTGGCGTGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGCGGACGGGTGCGGTGGCCGGTGATGTGCGGCCGGGGCCGGAGGCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
CTGCGGGACAGTGCCCGCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCC
                                                           CATGCCGCGTGCTTCGGGCTGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGCCG
                                                                                                                                                                                                                                          CTGAACCCGATGTTCGCCCCCCCCCCGGGGGGGTCTTCAGGGGCGGCCGGTGGCGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGGTGTTCGGGCGTTGTGTGGTGGTGGGCCGGGGCCGGTGCGGTGGGCCGCATGTTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Streptomyces pristinaespiralis"
/mol_type="unassigned DNA"
/db_xref="taxon:38300"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. .888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.27e-20
661.50
60.38%
49.52%
40.46%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Blanche, F., Paris, J. an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   888
155
34
101
23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BY MUTASYNTHESIS
669
                                                                                       199
                                                                                                                                                                                489
                                                                                                                                                                                                            159
                                                                                                                                                                                                                                        429
                                                                                                                                                                                                                                                                      139
                                                                                                                                                                                                                                                                                                    369
                                                                                                                                                                                                                                                                                                                                119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
                                                           609
                                                                                                                     549
                                                                                                                                                                                                                                                                                                                                                                                          99
                                                                                                                                                                                                                                                                                                                                                                                                                         249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 6
AR198354
LOCUS
                                  δ
                                                                      밁
                                                                                                Ś
                                                                                                                                 밁
                                                                                                                                                         δ
                                                                                                                                                                                             뭐
                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                DB:
                                                                                                                                                                                                                                                                                                                                                            Query
                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                  US-10-089-514-6 (1-322) x AR198354 (1-888)
                                                                                                                                                                                                                                                                                                                                                                                                                           Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                              Match:
                                                                                                                                                                                                                                                                                                                                                                                                                         No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              190
                                                                                                                                   130 GCGGCGGACGGGTGCGGGTGGTGGCCGGTGATGTGCGGCCGGGGCCGGAGGCCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     850 CTGGAACGGCTGTGCGCGCGGATGTTCACCGCCCTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              220 GlyG1ySerProGluValTyrG1yAspI1eG1nArgSerAsnProArgAlaAlaSerAla
                                          80
                                                                                       60 AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLys
                                                                                                                                                               42
                                                                                                                                                                                              73
                                                                                                                                                                                                                          22
                                                                                                                                                                                                                                                        13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unknown.
Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AR198354
Sequence 2:
AR198354
                                                                                                                                                                                                                                                                                      N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 888)
Blanc, V., Thibaut, D., Bamas-Jacques, N., Blanche, F., Crouzet, J.,
Barriere, J.-C., Debussche, L., Famechon, A., Paris, J.-M. and
Dutruc-Rosset, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptogramins for preparing same by Patent: US 6352839-A 2 05-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AR198354.1
                                                                                                                                                                                                                                                                      SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                          AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                             ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                              ---CACTGGCTGCGTTCGGGGGGTGGCGTGACCTGGCTGGAC--
                                                                                                                                                                                                                      GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis
              GCGGTGGAGGTGCTGGCGGGGGGGTGCGGCGGTGCGGGGACACCTTGTCG
                                                                      GCGGCGCTGGCGGCGGACGTGGTGGTGGTGGCGGAGCCGGAGCCGGTGGCGAGC
                                                                                                                                                                                                                                                       TCGGTGTTCGGGCGTTGTGGTGGTGGGCCGGGGCCGGTGCGGCCGCATGTTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----GCCCTGTTCGCCGAACTGCGCGTGTGCTGGGCGAGCACGGCGCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGGGCGACGAGGAGACGTTCGCC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGGCAGGCGCTGGCGCCTG------GTGCGGCTGGGGCAGGCCGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /mol_type="unassigned
                                                                                                                                                                                                                                                                                                                                           1.27e-20
661.50
60.38%
49.52%
40.46%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:20248203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          patent US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            888 bp
S 6352839.
                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mutasynthesis
```

849

279

777 259 729 239

801

linear

PAT

20-APR-2002

888 155 34 101 23

GTGGCCGGGGCCGGT

72

189

59 129 41

99 309

```
RESULT 7
A48323/c
LOCUS
                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
ORGANISM
   Alignment
Pred. No.:
                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                         DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ई
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                              ORIGIN
                                                                                                                                                  COMMENT
                                                                                                                      FEATURES
                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         670
                                                                                                                                                                                                                                                                                                                                                                                                                                                  058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                  STREPTOGRAMINES AND METHOD FOR PREPARING PATENT: WO 9601901-A 1 25-JAN-1996; RHONE POULENC RORER SA (FR)
Other publication AU 2891295 960209 Other publication FR 2722210 960112.
Location/Qualifiers
                                                                                                                                                                                                      1 (bases 1 to 2888)

Blanc, V., Thibaut, D., Bamas-Jacques, N.,
Barriere, J., Debussche, L., Famechon, A.,
Dutruc-Rosset, G.
                                                                                                                                                                                                                                                                                                                                                         Sequence
A48323
                                                                                                                                                                                                                                                                 Streptomyces pristinaespiralis
Streptomyces pristinaespiralis
Bacteria, Actinobacteria, Actinobacteridae, Actinobacteridae, Streptomyces.
Streptomycineae, Streptomycetaceae, Streptomyces.
                                                                                                                                                                                                                                                                                                                                                                                       A48323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCGGGACAGTGCCCCGCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCGGATCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CATGCCGCGGTGCTGGCCTTCGGGCTGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HisalaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCACCGACGGCCCGGTGGCCCCGGTGGAGCTCGGTGGCCGGGTGGGGGGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGGAACGGCTGTGCGCGCGGATGTTCACCGCCCTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGGTGGAGATGCCGGCGCGCGCGCACGACGACGAGCTGACCGCCGCGCAGCAGGCCGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGGGCGACGAGGAGACGTTCGCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCAAGAGCCGGATCGCCGGGCGGCTGCGTGAGGCGGCGCCGGGGCTGCAGGCGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                          \vdash
                                                         /organism="Streptomyces pristinaespiralis"
/mol_type="unassigned DNA"
/db_xref="taxon:38300"
                                                                                                                                                                                                                                                                                                                                            GI:2302116
                                                                                                                                                                                                                                                                                                                                                                       2888 bp
from Patent WO9601901.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GCCCTGTTCGCCGAACTGCGCGGGGTGTGCTGGGCGAGCACGGCGCGGAG
Length:
                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GTGCGGCTGGGGCAGGCCGTCGAG
                                                                                                                                                                                                                       Blanche, F.,
Paris, J. an
                                                                                                                                                                                           SAME
 2888
                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                Actinomycetales;
                                                                                                                                                                                           ΒY
                                                                                                                                                                                           MUTASYNTHESIS
                                                                                                                                                                                                                                       Crouzet, J.,
                                                                                                                                                                                                                                                                                                                                                                                       PAT
                                                                                                                                                                                                                                                                                                                                                                                      07-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  369
                                                                                                                                                                                                                                                                                                                                               S
                             문
                                                    δ
                                                                                    밁
                                                                                                          Ś
                                                                                                                                               밁
                                                                                                                                                                         δ
                                                                                                                                                                                                        8
                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
Query Match:
DB:
 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-6
 æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1764
                                                                                                                                               1059
                                                                                                                                                                                                                                                                                                                           1227
                                                                                                                                                                                                                                                                                                                                                                                      1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140
                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22
                             CTGGAACGCCTGTGCGCGCGCGATGTTCACCGCCCTGCAC
                                                       GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis
                                                                                                        GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla
                                                                                                                                                                                                                                  ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                 GGCGGGACGCCGGAGGTGTATTTCGACATCCAGGCCGCCAACCCCGGCGGCGGCGGCGGCGCG
                                                                                                                                                                                                                                                                                  GlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla
                                                                                                                                                                                                                                                                                                                                         LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                       HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGGTGGAGATGCCGGCGCGCGCGCACGACGACCACCTGACCGCCGCGCAGCAGGCCGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTCAAGAGCCGGATCGCCGGGCGCCTGCGTGAGGCGGCGCCGGGGCTGCAGGCGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CACTGGCTGGTGCGTTCGGGGGTGGCCGGTGACCTGGAC---GTGGCCGGGGCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCGGTGTTCGGGCGTTGTGTGGTGGTGGGCGGGGCCGGTGCGGTGGGCCGCATGTTCAGC 1765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGGCGACGAGGAGACGTTCGCC-----
                                                                                                                                                                           ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla
                                                                                                                                                                                                      CGGCAGGCGGGGCCGGCCTG-----
                                                                                                                                                                                                                                                                                                                           CTGCGGGACAGTGCCCGCCGCCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                    CATGCCGCGGTGCTGGCCTTCGGGCCTGGGCCTGGGTGGACCTGGGGGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCACCGACGGGCCCGGTGTGCGGGCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGGCGGÀCGGGTGCGGGTGGTGGCCGGTGÀTGTGCGGCGGCCGGGGCCGGÀGGCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (1-322) x A48323
                                                                                       ----GCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCGCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661.50
60.38%
49.52%
40.46%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-2888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matchės:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                        -GTGCGGCTGGGGCAGGCCGTCGAG
                             949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155
34
101
23
```

1228 199

219

279 1060

1036

1108

239

139

1468

119

1528

99

1588

79 1648 59

41

1408

```
Best L
Query
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                     Š
                                                                                                   밁
                                                                                                                                                       뫄
                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AR198353/c
LOCUS
                 S
                                             밁
                                                                                                                            Ş
                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
.
                                             1287
                                                                                                   1347
                                                                                                                                                           1407
                                                                                                                                                                                                                   1467
                                                                                                                                                                                                                                                                         1527
                                                                                                                                                                                                                                                                                                                                 1587
                                                                                                                                                                                                                                                                                                                                                                                         1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1824
                                                                        180
                                                                                                                               160
                                                                                                                                                                                       140
                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                     100
                   200
                                                                                                                                                                                                                                                                                                                                                             80
                                                                                                                                                                                                                                                                                                                                                                                                                    60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AR198353
Sequence 1 :
AR198353
AR198353.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Barriere, J.-C., Debussche, L., Famecho
Dutruc-Rosset, G.
Streptogramins for preparing same by
Patent: US 6352839-A 1 05-MAR-2002,
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 (bases 1 to 2888)
Blanc, V., Thibaut, D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unclassified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unknown.
LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                               HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                     ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                                   GTGGTGGAGATGCCGGCGCGCGCGCACGACGACCAGCTGACCGCCGCGCAGCAGGCCGCCACG
                                                                                                                                                          GTCACCGACGGGCCCGGTGTGCGGGGCCCCTGGTGGAGCTGGTGGCCGGGTGGGGGCCCCGG
                                                                                                                                                                             ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                               CTGAACCCGATGTTCGCCCCCTCGCTGGGTCTTCAGGGGCGGCCGGTGGCGGCGGTGGTG
                                                                                                                                                                                                                                                                                                  ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly
                                                                                                                                                                                                                                                                                                                                                                                      GCGGCGCTGGCGGCGGACGTGGTGGTGCTGGCGGTGCCGGAGCCCGGTGGCGTGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                     AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGCGGACGGGTGCGGGTGGTGGTCGTCATGTGCGGCGGCCGGGGCCGGAGGCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CACTGGCTGCGTTCGGGGGGGGGGGGGACCTGGCTGGAC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCGGTGTTCGGGCGTGTGGTGGTGGGCGGTGCGGTGGGCCGCATGTTCAGC
                                            CATGCCGCGGTGCTTGGGGCTGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGGCG
                                                                                                                                                                                                                                           LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal 139
                                                                                                                                                                                                                                                                         GTCAAGAGCCGGATCGCCGGGCGGCTGCGTGAGGCGGCGCCCGGGGCTGCAGGCGGTGGGG
                                                                                                                                                                                                                                                                                                                              GCGGTGGAGGTGCTGGCGGGGGGGTGATGCGGCCCGGTGCGCTCGCGGACACCTTGTCG
                                                                                                                                                                                                                                                                                                                                                          AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-322) x AR198353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="unknown"
/mol_type="unassigned
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.69e-20
661.50
60.38%
49.52%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GI:20248202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bamas-Jacques, N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2888 bp
US 6352839.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-2888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Famechon, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Blanche, F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2888
155
34
101
23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     enche, F., Crouzet, J., Paris, J.-M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GIGGCCGGGGCCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-APR-2002
                                            1228
                                                                                                   1288
                                                                                                                                                          1348
                                                                                                                                                                                                                  1408
                                                                                                                                                                                                                                                                        1468
                                                                                                                                                                                                                                                                                                                                1528
                                                                                                                                                                                                                                                                                                                                                                                      1588
                                                                                                                                                                                    159
                                                                                                                                                                                                                                                                                                    119
                                                                                                                                                                                                                                                                                                                                                          99
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 9
SPU60417/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1227 CTGCGGGACAGTGCCCCGCCGCCGCATCTGGCGATGCTGGCGCGCTGCTGGCCCGGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                220 GlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    U60417
U60417.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Streptomycineae; Streptomycetaceae; St
1 (bases 1 to 4740)
Blanc, V., Gil, P., Bamas-Jacques, N., Lo
Schleuniger, J., Bisch, D., Blanche, F.,
                                                                                                                                                                                                                                                                                                                                                                                                                    2 (bases 1 to 4740)
Blanc, V., Gil, P., Bamas-Jacques, N.,
Bisch, D., Blanche, F., Debussche, L.,
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pristinaespiralis encoding enzymes involved in the biosynthesing the 4-dimethylamino-L-phenylalanine precursor of pristinamycing Mol. Microbiol. 23 (2), 191-202 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomyces pristinaespiralis
Streptomyces pristinaespiralis
Bacteria; Actinobacteria; Actinobacteridae; Actinomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SPU60417
4740 bp DNA linear BCT 07-MAR-: Streptomyces pristinaespiralis 4-dimethylamino-L-phenylalanine precursor biosynthesis (papA, papC, papB, papM) genes, complete
                                                                                                                                                                                                                                                                                                                                                                                Submitted (11-JUN-1996) Recherche Rorer, 13 quai Jules Guesde, B. P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97197164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Identification and analysis of genes from Streptomyces

The biosynthesis involved in the biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9044253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Thibaut,D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTGGAACGGCTGTGCGCGCGCGGATGTTCACCGCCCTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGGGGCGACGAGGAGACGTTCGCC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CGGCAGGCGCTGGGCCGCCGCCTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCGGGACGCCGGAGGTGTATTTCGACATCCAGGCCGCCAACCCCGGCGCGCCGCCGC
           APAPPASAPVGEYRLHVREVACVPDADAAFTALFADAPARFWLDSSRVEPGLARFTFL
                                                                                                                                                                                                                 /gene="papA"
68. .2227
                                                                                                                                                                                                                                                       /db_xref="taxon:38300"
68. .2227
                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                       product="PapA"
                                                                                                                                                                                                                                                                                       organism="Streptomyces/mol_type="genomic DNA"
                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                               function="p-aminobenzoate
                                                                                                                                                                                            "gene="papA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:1575335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -GCCCTGTTCGCCGAACTGCGCGCGTGTGCTGGGCGAGCACGGCGCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GTGCGGCTGGGGCAGGCCGTCGAG
                                                                                                                                                                                                                                                                                                          pristinaespiralis'
                                                                                                                                                                                                                                                                                                                                                                                Pharmaceutique, Rhone . 14, Vitry sur Seine
                                                                                                                                                                                                                                                                                                                                                                                                                                     Lorenzon, S., Schleuniger, J. Crouzet, J. and Thibaut, D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lorenzon, S.,
                                                                                                                                                                               synthase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Debussche,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŀ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zagorec,
                                                                                                                                                                                                                                                                                                                                                                                  Rhone-Poulenc
Seine cedex 94403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Crouzet, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BCT 07-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O.f.
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                US-10-089-514-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SdD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          о́.:
                                                                3304
                                                                                                                                                                        3364
           42
                                                                                                                      22
                                                                                                                                                                SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                             ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                             GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                                                                   (1-322)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/trans[ table=1)
/product="PapB"
/protein_id="AAC44868.1"
/db_xref="GI:1575338"
/translation="MTPPAIPAAPATGPAAATDPLDALRARLDAADAALLDAVRTRL
DICLRIGEYKRLHQVPMMQPHRIAQVHANAARYAADHGIDPAFLRTLYDTIITETCRL
EDEWIASGGAFVPTPVHASASARGAVS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="PapC"
/product="PapC"
/product="PapC"
/product="PapC"
/product="PapC"
/product="GI-PaAC44867.1"
/db_xref="GI-157337"
/db_xref="GI-157337"
/db_xref="GI-157337"
/db_xref="GI-157337"
/db_xref="GI-157337"
/db_xref="GI-16737"
/db_xref="GI-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NIGYVGYLGYETKADSGGEDAHRGELPDGAFMFADRMLALDHEQGRAWLLALSSTRRP
ATAPAAERWLTDAARTLATTAPRPPFTILLPDDQLPALDVHYRHSLPRYRELVEECRRL
ITDGETYEVCLTNMLRVPGRI DPLTAYRALRTVSPAPYAAYLOFPGATVLSSSPERFL
RIGADGWAESKPIKGTRPRGAGPAQDAAVKASLAAAEKDRSENLMIVDLYNDLIGQVC
DIGSVHYPGLEFVETYATVHQLVSTURGRLAADVSRPFAVRAAFPGGSMTGAPKVRTM
QFIDRLEKGPRGVYSGALGYFALSGAADLSIVIRTIVATEEAATIGVGGAVVALSDPD
DEVREMLLKAQTTLAALRQAHAGATASDRELLAGSLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="mtaaaptlaqaldeatgqltgagitadaaradtrllaahacqva
FGDLDTCLaceveprewhywrrltrepaeriyghayemghredlapgygyeperetee
ITRDAIARLEALVRGTTAPLVVDLCAGPGTMAVTLARHYPAARVLGIELSQAAARAA
RRNARGTGARIVQGDARDAFPELSGTVDLVVTNPPYIPIGLRTSAPEVLEHDPPLALM
AGEBGLGMIRAMERTAARLLAPGGVLLLEHGSYQLASVPALFRATGRWSHASSRPTCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="papM"
3799. .4677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="papB"
3413. .3802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (2486. .3376)
/gene="papC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DGCLTAVRNHTCAPPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="PapM"
/protein_id="AAC44869.1"
/db_xref="GI:1575339"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="papM"
/function="N-methylase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="papB"
/function="mutase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             function="dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="papC"
                                                                                                                                                                                                                                                                                                                                                         5.79e-20
661.50
60.38%
49.52%
40.46%
                                                                                                                                                                                                                                                                                x SPU60417 (1-4740)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .3802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .4677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (2486. .3376)
                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                   4740
155
34
101
23
                                                             3248
                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 10
BX571871/c
LOCUS
                                                                                                                                                                                                                        SOURCE
ORGANISM
                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
Duchaud, E., Rusniok, C., Frangeul, L., Buchrieser, C., Taourit, S., Bocs, S., Boursaux-Eude, C., Chandler, M., Dassa, E., Derose, R., Derzelle, S., Freyssinet, G., Gaudriault, S., Givaudan, A., Glaser, P., Medigue, C., Lanois, A., Powell, K., Siguier, P., Wingate, V., Zouine, M., Boemare, N., Danchin, A. and Kunst, F.
                                                                                                                                                                complete genome.

Photorhabdus luminescens subsp. laumondii TTO1

Photorhabdus luminescens subsp. laumondii TTO1

Bacteria; Proteobacteria; Gammaproteobacteria;

Enterobacteriaceae; Photorhabdus.
                                                                                                                                                                                                                                                                                                 segment 13/17.
BX571871 BX470251
BX571871.1 GI:36786846
                                                                                                                                                                                                                                                                                                                                                                                        Photorhabdus
                                                                                                                                                                                                                                                                                                                                                                                                               BX571871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGAACGGCTGTGCGCGCGCGGATGTTCACCGCCCTGCAC 2489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCACCGACGGGCCCGGTGTGCGGGCCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCGCTGGCGGCGGACGTGGTGGTGGTGCCGGAGCCGGTGGCGTGGCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGCGGACGGGGTGCGGGTGGTCGGTGATGTGCGGCCGGGGCCCGGAGGCCGGTC 3188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGCGGGACAGTGCCCCGCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATGCCGCGGTGCTGGCCTTCGGGCTGGGCCTGGGGTGAGCTGTCGGTGGACGTGGGGGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGGTGGAGATGCCGGCGCGCGCGCACGACGACCTGACCGCCGCGCGCAGCAGGCCGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCAAGAGCCGGATCGCCGGGCGGCTGCGTGAGGCGGCGGCCGGGGCTGCAGGCGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGGTGGAGGTGCTGGCGGGGGGTGATGCGGGCCCGGTGCGGGTGCTCGCGGACACCCTTGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGGGGCGACGAGGAGACGTTCGCC-----
                                                                                                                                                                                                                                                                                                                                                                                     luminescens subsp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -GCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGTGCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                            349944 bp
                                                                                                                                                                                                                                                                                                                                                                                     laumondii TTO1 complete genome;
                                                                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGCGGCTGGGGCAGGCCGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                               Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                 BCT 26-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3128
```

2600

2648

219 2768 2828

2888

3008

3068

79

Query DB:

ORIGIN

ફ 밁 8 밁 श

```
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                       gene
                                                                                                                             Sd
                                                                                                                                                                                                                                                                                       RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (23-APR-2003) L. Frangeul, Institut Pasteur, Genopole, rue du Docteur Roux, 75724 Paris Cedex 15, FRANCE. E-mail: lfrangeu@pasteur.fr, fkunst@pasteur.fr Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Complete genome sequence of the entomapathogenic bacterium Photorhabdus luminescens Nat. Biotechnol. 11 (1) (2003) In press
/transl tak
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WFCGGKTNILCYNALDRWLESQPDAKALITISTETNSEKVFTFKELHQEVURABANMALITISTETNSEKVFTFKELHQEVURABANMALITISTETNSEKVFTFKELHQEVURABANMALITISTETNSEKVFTFKELHQEVURABANMALITISTETNSEKVFTFKELHQEVURABEPULVV BLOVEKGBRULVEVARPALAMALITYLLACARIGAVHSVVFGGFASQSLATRLDNAEPULVV SADGARGKIIPYKELDAIFLACARIGAVHSVVFGGFASQSLATRNDIFFGEKGEV SADGARGKIIPYKESCLVLYTSGTTCTPKGVQDRUGGAVALATSMDIIFGGKAGEV YFDADIPVTWLESNETSCULYTSGTTCTFKGVQDRGIWWKIVEKVQVTRHFSAP FSTSDLGWIVGHSYIAVAPLIAYAPLIAGAPILDERPAGTETG WFINIKKYPIECIGKVDISSLKTLYLAGEPILDEHTARWIABALIKMYVIDENPAGTETG WFINIALKYPIECIGKVDISSLKTLYLAGEPILDETGACGDMEKGMLVIEGPPAGGE IQTIYGDDTRFXRFGSTGFPMYGFHVKLINELTGACGDMEKGMLVIEGPPAGGE IQTIYGDDTRFXRFGSTGFPMYGFHVGIRDSDGYYFILGRSDDVLIWAGGHRLGTR EIECCIASHEDVAEVAVIGIKDAIKGQVAVAFAVLKDGKEIQNAEHFAALEKVLMGIV MKQIGSVGRPARIYFVSQLPKTRSGKWLRRTMQAICEGREPGDLSLIENPASLDVIRE
                                                                                                                                                                                                                                                                                                                                /translation="MSTSVASNHPEYDOVIADIVDYVMEYAITSSVAYETAYYCFLDT IGCGLEALEYEACKKLIGFIVPGTVVPNGYNVPGTOFQLDFVQAFNIGTMIRRLDFN DTWLAAEMHEFSDNLGGILAVADMISRNAVAGGKKPLTIKOVLTGMYKAHEIGGCLAL BENAFNKVGLDHVVLVKVASTAVVAEMLGLNREBILSAVSLAMVDGQSLETYRHADNTG SKSNAVAGDATSAVVLALMAQKGEMGYPSVLTAKTWGFYDVLTHGOPFKFQRAYGAY VMENVLFKIAFRAPATELALHAQKGEMGYPSVLTAKTWGFYDVLTKTIRTHEACIRIIDK SKSNAAGDATSRAVELALMAQKGEMGYPSVLTAKTWGFYDVLTKTIRTHEACIRIIDK VMENVLFKIAFPAGFTAQTAVEAAISLHQQLKDAĞKTINDITKITIRTHEACIRIIDK SASTAVBADREACIRIIDK SKSNAAGDATSAVAIFLIFGHLTAADYEDSVAADFRIDALREKIVCIEDLDFT RDYHDPEKRSIANALTYTFTDGSQLDEVKVBFFIGHARRRKEGIPLLLKKFRTNLARQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl ter /pro/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="prpE"
/locus_tag="plu3539"
complement(3101. .4565)
                                                                                                                                                                                                  /locus_tag="plu3540"
complement(4607. .5787)
                                                                                                                                                                                                                                                                                    complement (4560. .4565)
                                                                                                                        complement (4607. .5773)
                                                                                                                                                                                                                                                                                                             FPETQQRRILSVSLDCSLLESMPVNEYLDLYVI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="2-methylcitrate dehydratase"
/protein_id="CAE15913.1"
/db_xref="GI:36786848"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (3101. .4552)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (3033. .3038)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AVEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="Propionate--CoA ligase (Propionyl-CoA
synthetase)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="prpD"
/locus_tag="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="CAE15912.1"
/db_xref="GI:36786847"
/translation="MSFNAFYQOSIDDPNAFWAEQAQRIFWQHDFEQVLDYSNPPFAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (1142. .3028)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Photorhabdus luminescens subsp. laumondii TTO1"
/mol_type="genomic DNA"
/strain="TTO1"
                                                                                                                                                      locus
                                                                                                                                                                                                                                                           "gene="prpD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  trans1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  è
                                                                                                                                                                            gene="prpC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene="prpD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene="prpE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="prpE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 locus_tag="plu3540"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   locus_tag="plu3539"
                                                                    locus_tag="plu3541"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Frangeul, L., Rusniok, C. and Kunst, F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .349944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    xref="taxon:243265"
lement(1142. .3038)
                                                                                                                                              _tag="plu3541"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _tag="plu3540"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  tag="plu3539"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25
                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sdo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RBS
```

```
IQLGFENAVQHIRQRLTTECCDAVLCAGSNGAYLKSRLSVPVIIAKASGFDFMQALAR
ARQISSRIGVITYQNTLPALEBEPQREFULRIEQRSYVTEEDARAQVNALKAIGIKVIV
GAGLITDLAYEAELVGEVEVYSADSIRQAFHDALDIARMTTLSQASISAY PTENNLRTR
HTLNDIRGDSAVMEHVRNTIMLYARSPATVLIQESGTGKELVAQAIHHEYALRKYQV
AGKHQREFVAVNCGALASSLLEAELFGVEEGAFTGSRRGGRAGLFEVAHRGTLFLDEI
GEMPLPLQTRLLRVLEEKSVVRVGGHRPIAVDFRICATHCVDTWVQDGRFRTDLFY
RLSVLRINIPALRERGHDIGILALEYLERAFAALNLFVSQSRVQELATCQEALQAYHW
PGNVRBLRNIMFERLTLYLSAHPEHILTPELILALSPERQSILKQAEQSMKSSPSSIQO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="probable methylisocitrate lyase (2-methylisocitrate lyase)" (2-methylisocitrate lyase)" (protein_id="Cati5915.1" (brotein_id="Cati5915.1" (brotein_id="Cati5915.1" (brotein_id="MTLSSAGLAFRRAIDAESPLOVVGTINANHALLAKRAGYKAIYL (brotein="MTLSSAGLAFRRAIDAESPLOVVGTINANHALLAKRAGYKAIYL SGGVSAGSLGMPDLGISTLDDVLTDIHRITDVCDLPLLVDADIGFGSSAFNVARTVR SGGVSAGSLGMPDLGISTLDDVLTDIHRITDVCDLFLLVDADIGFGSSAFNVARTVR SMIKAGAAGLHIEDQVCAKRCCGHRPNKEIVSKEEMYDRIKAAUDARTDKHFIIMARTD ALAVEGFAAALDRAKAYIEAGADMLFPEAITELHWYKAFASTTGVPVLANITTEGGATP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GYDILDLATQCEFEEVAYLLVHEKLPSRAELAAYKAKLTALRGLPGSVKAALETLPAA
AHPMDWRTGVSVLGCTLPEKODHNLAGARDIADRLASISSILLYWYHYSHOGRID
VETDDVSIGGHELHLLKKKYTCESWEKAMHTSLLILYABEPNASTFTSRVIAGTGTDI
YSAIIGHELHLLKGENEVSFEIQRYENPDEAERDILARLARKEVIIGFGHPVY
TISDPHKVIKUVALQLSKEAGTTKWENIADRLEAVWAANKKWEPNLDWFSAVSYHWM
TISDPHKVIKUVALQLSKEAGTTKWENIADRLEAVWAANKKWEPNLDWFSAVSYHWM
                                                             /locus_tag="plu3544" complement(8738. .97)
                                                                                                                                                                 SSLVVPLSVHETLKRFSGNHHATAEYLGISRTTLWRRLKKEIARERE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /locus_tag=
7057. .8724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /locus_tag="plu3541"
complement(5834. .6736)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GVPTAMFTPLFVIARTAGWAAHIIEQRIDNKIIRPSADYTGPENRVFTPIGKRG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="2-methylcitrate synthase (Methylcitrate
synthase) (Citrate synthase 2)"
/protein id="CAEIS914.1"
/db_xref="GI:36786849"
                                                                                                                       complement (8738.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             /locus_tag="plu3543"
/codon_start=1
/transl_table=11
/product="Propionate catabolism operon regulatory protein"
/protein id="CAB15916.1"
/brotein id="CAB15916.1"
/db xref="G1:3678681"
/translation="MAETPSAERDNRDKPVIWTVSVSRLFDLFRDITPEFDHQANITP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LFTTEELKSADVSIALYPLSAFRAMNKAAEQVYITLRREGTQKSVISMMQTRNELYES
INYYDFEQKLDLLFSQKKSQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (5834. .6724)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (5782. .5787)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (6731. .6736)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/transl_table=11
/locus_tag="plu3544"
/function="Unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'gene="prpR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="prpR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /locus_tag="plu3543"
7047. .7052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'gene="prpR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="prpB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="prpB"
/locus_tag="plu3542"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="prpC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /locus_tag="plu3542"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="prpB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'tr\overline{	ext{a}}nslation="MSEQNTMTELTTFKPKKSVALSGVSAGNTALCTVGKTGNDLHYR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _tag="plu3543"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             tag="plu3542"
                                                             .9709)
                                                                                                                              .9709)
```

/transl_table=11
/proteain_id="CABI5917.1"
/proteain_id="CABI5917.1"
/proteain_id="CABI5917.1"
/proteain_id="MISKTLYFLIFPNVNLLDLSGPLQVFTTANBLABKFGHRRPYAI
/translation="MNIKTLYFLIFPNVNLLDLSGPLQVFTTANBLABKFGHRRPYAI
KVVACDPGQVWTQAGITVQAEPLPKLDSPADTLIVAGGIGVESAANHPPLRNWLKGHA
SLARRIVSVCSGAFILAACGLLDGRRVVTHWSSCAELARRYSKLRVECDPIFIQDGPV

transcription regulator"
/codon start-1

Similar to

probable

/codon_start=1
/transl_table=

29787

29727

29550

```
S
                                                                                                         밁
                                                                                                                                            ঠ
                                                                                                                                                                                      문
                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similari
                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-6 (1-322) x BX571871 (1-349944)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Мо
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  30323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity:
                                                                                                                                                   83
                                                                                                                                                                                                                                                                                                                     43
                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                           28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            æ
                                                                                                                                                                                          AGTGGGGCAAAAGGCGGTCGTCTTTGCCTTACCGGAAGCCGTCGCCATACAAGCGTTGCCT 30081
                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCATCCTTGGTGGGCAAGGCGCTATTGGTTCTTTATTAGAGCGCCTTTTTACTCAATAT 30264
                     CCTTTTTATTCTGCATTAAGAGCTGCCGCCCCCGGGCAGCCTTTCATTGGTGTTAACCCG 29967
                                                                                                                                                                                                                                                                                                                                                             GGTCATATTGTATACAGTGTTGACAAACGAACGCAGGGAGTGCGTTCTCATTACTATCAT 30204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                               GlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnPro 122
                                                                                                                                            ProvalThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr 102
                                                                                                                                                                                                                                                                           TCTCATTACTGTCAGATT---GATATCTTAAACCCGGCTGCTGATGTTGGAGCGGTTTTG 30147
                                                                                                                                                                                                                                                                                                                   ProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeu 62
                                                                                                                                                                                                                                                                                                                                                                                                      GlySerArgThrLeuValValAspLeuValProProProGlyArg-----
                                                                                                                                                                                                                               ArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="ISPlu15A"
/locus_tag="plu3546"
complement(11533..12540)
/gene="ISPlu15A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/protein_id="CAB15918.1"
/protein_id="CAB15918.1"
/db_xref="G1:36786853"
/translation="MKNTSKEHPAALSSLINASSGEKPTLAFVIFPGMTPLDMIGPAT
/translation="MKNTSKEHPAALSSLINASSGEKPTLAFVIFPGMTPLDMIGPAT
VLGVGGMLNIEYVWRDLLPVRTELAHISFSPSTTFEQLMKVDILCVPGTGNPYALLAE
LDMLDWIHKVGSKASWVTSVCTGSILLGAAGLLKGYQAATHWSMIDDLNKFDAIPVNK
RVVIDBNRVTGGGVTAGIDFGLTLLABIKGBEYAQAVQLAMQYSPEPPFNSGMPEFAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="WKRKNTPTPHDAIFKKFLSHIDTARDFLEIHLPATLRAVCDLDT LRLESGSFIEDNLFWHYSDILYSLKTTQGESYTYCVIEHQSSPDKMMAFRLMRYSISA MOMILEQGHKKLPLVIPVLFYHGKIRPYPMSTMMFDCFDASALAEEIYSSAFPLVDVT VIPDDEILTHKRVALLEIVQKHIRQRDMAELQQELTMLFAYDYYTYELLKSMLNYILL VQCHIADPEGFIRQLAEQFPKYEEVLMTIAQKLQHKGHQEGLKEGLQKCQDAREEGLQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="unnamed protein product; Some similarities with
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WTSAGVTAGIDLALALLEEDFGHKLALDVARDLVMFLKRPGGQEQFSAPLALQSSTSK
FADLHAMMTNNLAGDLSVATLATRANNSERSFVRHYSCHAGITPAKAVERFRLEAARH
LLVESTLSLKCIASRCGFGCEDTLRRSFFRAFSSTPQDYRKHFKTTF"
10003. .10784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KEITHATLQAIFSNVEKQTPDYKEILIKSAKRISDIY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="Transposase, ISNCY family"
/protein_id="CAE15919.1"
/db_xref="GI:36786854"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /locus_tag="plu3545"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    locus_tag="plu3546"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       locus_tag="plu3545"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /locus_tag="plu3545"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              function="Transposase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 function="Unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.95e-06
382.00
47.94%
32.06%
23.36%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101
50
126
38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    349944
                                                                                                                                                                                                                                                                                                                                                                                                        42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 11
AX770909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        POCAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
  Percent Similarity:
                                           Pred. No.:
                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123
                                                                                                                                                                                                                                                                                               INSTITUT PASTEUR (FR)
SCIENTIFIQUE (CNRS) (F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Photorhabdus luminescens
Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 40
AX770909
                                                                                                                                                                                                                                                                                                                                                                                  Sequence of the Photorhabdus luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AX770909.1
                                                                                                                                                                                                                                                                                                                                    Patent: WO 02094867-A 40 28-NOV-2002;
                                                                                                                                                                                                                                                                                                                                                                                                      Danchin, A.
                                                                                                                                                                                                                                                                                                                                                                                                                        Duchaud, E., Taourit, S., Glaser, P:, Frangeul, L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Photorhabdus luminescens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AX770909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Enterobacteriaceae; Photorhabdus;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATAGAAGTGTACTGGGACGTTCAATATGAAAATCCGATGGCTGCCGAACCGCGTCAGGAG 29607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaVal 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CATGTTAGTGAACATTGGATTGAGCGGGTATTGATGCAGGCTGATATGCGTATCAGTAGG 29847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGCTGCATGCCATACAACAGTTAGATTCGATAGTACAGGCTGGCGATCAAACTGAA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuAlaGluAlaLeuArgSerPheAlaAlaLeuVal-----GlyAspAspProAspArg 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAla 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTGCGCCACCGCCATGCGTACCATGCTGGCGTTATTATCAAGGATCTTACGCAATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGACGCCGGAGGAACACGATCAGGTTATGGCGCTTTGTCAGGCTTTGCCCCCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |||||||:::|||:::
ATGTTCTCGCCATCTTTGCCGGAGCAAAAAAGGCCAGTTGCAGTCATTCTCGATAACTGT 29907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAsp 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTTGATATCAGTGCTGCTGATTGCCAGCATATTTTTCAACGCTT 29460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuAlaAlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeu 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySer 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATACTGATTTTTGGCTTGGTGTTGGCGAAAAGTCCGTTAGATATTCGTACCTTGGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArgProValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AsnLeuAspGlyValPheGly------GluLeuArgArgLeuMetGlyProGlu 296
                                                                                                                        /noTe="sequence length too big . Splitted into 2 sequences.~seq 00040: 1 to 349980~seq 10790: 300001 649980~seq 10791: 600001 to 696798"
                                                                                                                                                                                    /organism="Photorhabdus
/mol_type="genomic DNA"
/db_xref="taxon:29488"
                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                          . .349980
                                                                                                                                                                                                                                                                                                                                                                                                      and Buchrieser,
2.95e-06
382.00
47.94%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:32438073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     from Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITIGGCAATAACCTCAGAGATATTGCGCAACAACTGGGGGAACAG 29505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           349980
                                                                                                                                                                                                                                                                                                                     CENTRE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO02094867
Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ģ
                                                                                                                                                                                                                                                                                                                     NATIONAL
                                                                                                                                                                                                                               luminescens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                                                                                                                                                                                                                                     멾
```

strain

genome

and

Kunst, F.,

linear

PAT

02-JUL-2003

ξ

RECHERCHE

349980 101 50

ូ

```
RESULT 12
AE010371
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best L
Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                    밁
                                                                                                                                          Š
                                                                                                                                                                                      밁
                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-089-514-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Match:
                                                                                                    116796
                                                                                                                                                                                                                                                                           116750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 116037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115977
                                                                                                                                              297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            œ
             AE010371
                                                                                                                                                                                                                                                                                                                                                                                                                                           ATAGAAGTGTACTGGGACGTTCAATATGAAAATCCGATGGCTGCCGAACCGCGTCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTGCGCCACCGCCATGCGACCATGCTGGCGTTATTATCAAGGATCTTACGCAATCCA 116633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |||::::::|||||| |||||:::||| :::
GTCATCCTTGGTGGCAAGGCGCTATTGGTTCTTTATTAGAGCGCCTTTTTACTCAATAT 116036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeubeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGACGCCGGAGGAACACGATCAGGTTATGGCGCGTTTGTCAGGCTTTGCCCCCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgProValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCTTTTTATTCTGCATTAAGAGCTGCCGCCCCCGGGCAGCCTTTCATTGGTGTTAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGGTGTTATCTGCTATTGGTGATGATGTACAGATCGTGTCAACCTGTTCAGTTCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTCATTACTGTCAGATT---GATATCTTAAACCCGGCTGCTGATGTTGGAGCGGTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlySerArgThrLeuValValAspLeuValProProProGlyArg-----
                                                                                                  CTTGATATCAGTGCTGCTGATTGCCAGCATATTTTTTCAACGCTT 116840
                                                                                                                                     LeuAlaAlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeu
                                                                                                                                                                                                                              AsnLeuAspGlyValPheGly------GluLeuArgArgLeuMetGlyProGlu
                                                                                                                                                                                                                                                                                                               AlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly
                                                                                                                                                                                                                                                                                                                                                         TTGCTGCATGCCATACAACAGTTAGATTCGATAGTACAGGCTGGCGATCAAACTGAA---
                                                                                                                                                                                                                                                                                                                                                                                                   LeuAlaGluAlaLeuArgSerPheAlaAlaLeuVal-----GlyAspAspProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATACTGATTTTTGGCTTGGTGTTGGCGAAAAGTCCGTTAGATATTCGTACCTTGGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaVal 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATGTTAGTGAACATTGGATTGAGCGGGTATTGATGCAGGCTGATATGCGTATCAGTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGTTCTCGCCATCTTTGCCGGAGCAAAAAAGGCCAGTTGCAGTCATTCTCGATAACTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGTGGGGCAAAGGCGGTCGTCTTTGCCTTACCGGAAGCCGTCGCCATACAAGCGTTGCCT 116213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGTCATATTGTATACAGTGTTGACAAACGAACGCAGGGAGTGCGTTCTCATTACTATCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (1-322) \times AX770909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   32.06%
23.36%
                                                                                                                                                                                    TTTGGCAATAACCTCAGAGATATTGCGCAACAACTGGGGGAACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (1-349980)
             14192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches:
Indels:
Gaps:
             đđ
             DNA
             linear
                                                                                                                                            311
             BCT 01-AUG-2002
                                                                                                                                                                                                                                                                                                                 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           122
                                                                                                                                                                                                                              296
                                                                                                                                                                                                                                                                                                                                                                                                   260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                102
                                                                                                                                                                                      116795
                                                                                                                                                                                                                                                                                                                                                                                                                                              116693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       116513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              116393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     116273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                      Sg
                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SdO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Slesarev,A.I., Mezhevaya,K.V., Makarova,K.S., Polushin,N.N., Shcherbinina,O.V., Shakhova,V.V., Belova,G.I., Aravind,L., Natale,D.A., Rogozin,I.B., Tatusov,R.I., Wolf,Y.I., Stetter,K.O., Malykh,A.G., Koonin,E.V. and Kozyavkin,S.A.
The Complete Genome of the Hyperthermophile Methanopyrus kandleri and Monophyly of Archaeal Methanogens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Slesarev, A.I., Mezhevaya, K.V., Makarova, K.S., Polushin, N.N., Shcherbinina, O.V., Shakhova, V.V., Belova, G.I., Aravind, L., Natale, D.A., Rogozin, I.B., Tatusov, R.L., Wolf, Y.I., Stetter, P. Marale, D.A., Rogozin, I.B., Tatusov, R.L., Wolf, Y.I., Stetter, P. Malykh, A.G., Koonin, E.V. and Kozyavkin, S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 (bases 1 to 14192)
Slesarev, A.I., Mezhevaya, K.V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Methanopyrus kandleri AV19
Methanopyrus kandleri AV19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AE010371 AE009439
AE010371.1 GI:19887260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Methanopyrus kandleri AV19 section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Submitted (04-FEB-2002) Fidelity Systems,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Methanopyraceae; Methanopyrus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Archaea; Euryarchaeota; Methanopyri;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 14192)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="MK0793"
/codon_start=1
/transT_table=11
/product="Uncharacterized composed in id="AAM02007.1"
/db_xref="GI:19887261"
                                                                                                                                                                                                                                            /protein_id="AAM02008.1"
/db_xref="G:119897262"
/tda_xref="G:119897262"
/translation="MTSTSVVIVSREITKGVSBIRVGLVIHGPTVIDTGWAERILRSL
/translation="MTSTSVVIVSREITKGVSBIRVGLSELNEWADVLVLTINHGKSR
KRIGEVRAKIGGTTGYVALLDAGLDSVVEFDRKLPSECISELNEWADVLVLTINHGKSR
KRIGEVRAKIGGTGYSRAKOVSPEDREDGGIVTWNPCDAERRVAEHLREDLGLKIT
EVGLAFAEGOTIKSRAKOVSPEDRELVNGITVGVALSRAVELVPDDSGYLVEIRG
ERIKPEGVERLGRVDEERVVVKTDRALRRTEFERKRVKSGPERIHRVLLVDHDAERKV
GRIKPEGVERLGRVDEERVVVKTDRALRRTEFERKRVKSGPERIHRVLLVDHDAERKV
                                                                                                                                                                                                                                                                                                                                                                                             /337. 2524
/gene="MK0794"
/337. 2524
/gene="MK0794"
/codon_start=1
/trans[_table=1]
/product="Uncharacterized protein conserved in archaea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MPFLLEGARQLKTIEVGVAYGKDPHAVVEDAIDQLTEDPNLGLVFPSPKHIEEIESAVGSLPEGCKVIGCSTAGELTPDGYTYGTTVALISSPYLAVETHRITFEREDFKHAREIGRULVLGAMEKLENPGPCLDINFNAMLTSLSEGRPIRALFYFIELTFEREDFKHAREIGRULVLGAMEKLENPGFCLDINFNAMLTSLSEGRPIRAFYFIELTFERENFKHAREIGRULVLGAMEKLENPGGAAGDDLRLERTYVLEGRTLCPEGSAV
                                                                                                             /gene="MK0795"
2581. .3564
                                                                                                                                                                                                        EDMRRSDAVVSVGDDTTCVCAELGDRLGVWVIGLVDLDPDGWVRDDTRESLRSSENLA
ALLVCERDDDAGKLVRGRFFRDREMRVLDPPVTVGELVEEVKECVKEVLKCVYHKAKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VAFGSTALKIGGALECGFEPVYEDRFPVTKAVPEERRIVEFDGEPAADYYADVVGKPV
EELDDSVFMWNPLGWEIFGREIIVREPAFVEDDGSMIFHSRSPAAGALIRLEPTEENM
RETARRVTERAMRRADIRDPEEIALVLVFDCAHRDCDAQYDAIREVVGDDVPIVGFKT
/codon_start=1
/transl_table=11
/product="Selenophosphate
/protein_id="AAM02009.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YGEHGQLESGPVGHFNQTIEVVDR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /mol_type="genomic
/strain="AV19"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Methanopyrus
/mol type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="MK0793"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:190192"
                                                                                             gene="MK0795"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       kandleri
                               synthetase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   conserved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Methanopyrales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Inc.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaithersburg,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Stetter, K.O.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₹
```

gene

SdC

```
/protein_id="AAM02010.1"
/db_xref="Gi:19887264"
/db_xref="Gi:19887264"
/tranalation="marvydogepvDvpbeatvrdaleaagvsvpedvtiavfkgegkv
retiprlrimletgdeelsltvavedeersevceelpgssvswttpdevglgpvDvsd
LefttrrgcvevppyTaliilprndpsbayfiltrrrawaystyctpDihgrvtagrelvd
ELFTHREGVEVppyTaliilprndpsbayfiltrrrawaystyctpDihgrvtagrelvd
ELFGGERVTHVEPVVERATERVVSWTIDDGLEAGDRIITRVEIELEKNAPVSAEHLL
NTLEMEEGRLRIKFRTDTFTSIEPRPFVDLPEENVDMEEGVVTVRNRCGVDEGVVYVY
RRDRTFVESHNVVGRVRGMELLDVALEGDRVLVETDPPRVBFVLTVDEARELAEBE
PVELEVNGDGDVVDQEPRETLNVLKERKVRVEVPEDEVIEIELYEDDAPRSUASHEN
KEHAGLIGVRLEDSESYGPTGETFEGTNVIGRVFGRLFKLEMDQSDMGRTVYVREVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /COGON_BLATE=1
/COGON_BLATE=1
/LYANGULGE=17
/Product="Prephenate dehydrogenase"
/product="Prephenate dehydrogenase"
/protein_id="AAM02012.1"
/protein_id="AAM02012.1"
/db_xref="G1:19887266"
/translation="MRIAILGGTGAMGRLIARELRDGHEVVITGSNPHTAERVAREL
PVEAAFNVDAAKDADVVVVSVPISVTEDVIREVAPHVPEGSLLTDVTSVKCRFVRAM
LEHAPEDVYVLGTHPLFGFTVPSLRGCTVILTFTERSGFWTERVRYLERKGARVVET
TPEEHDRTMAVVOCLTHAVLLAAGAIGRFLESLEDJEEVASFVYRLLDDVGRIAG
DDRLYAEIQARNFYGDEAREELLRALRFHEHAHDHNALTEVIAESEERLGGELDRD
ACORRTDKLISYLADELRILGEGIEAILLDVTNEALEGEVTGDRDTIRLDGREERRD
ACORRTDKLISYLADELRILGEGIEAILLDVTNEALEGEVTGDRDTIRLDGREERRD
ACORRTDKLISYLADELRILGEGIEAILLDVTNEALEGEVTGDRDTIRLDGREERRD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tranelation="MKVLVISPEYYTYGAIVVAGVCEEHGHSTILRRSPDPEALKRAD
/tranelation="MKVLVISPEYYTYGAIVVAGVCEEHGHSTILRRSPDPEALKRAD
/tilshttlhildedileinrggeysovpelvisperenaivarge
etglpplicotledegdeedvegaillrdgeivdtotgwepadlogesplkvprdigrog
vrganvziethgcepactfcovpeffgrrwkdpvbavleevreltrogarreaisg
gtvttygddeedfvellkrladilgrenvsaddlnerlleairdyticwiflg
iesgsdrilramrkgitvddvcavellatrogrvagfivdvegeteddleateell
telhiddvfinlaefigtgeichtrelpebeipvlrpgegegradgralolcutaf
telhiddvfinlaefigtgeichtrogaoglybergradgralolcutaf
ttlsrpvpltddvfhealhnirederkvlritrflragaogctg"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /translation="malrelarelrsfegotrkhpvktvvegllepldvtfegeviad 
Vgedaaavkvoddilliaadgiwgklidrdpwaggycavluvudvlawggrpvglvu 
VLSTSDVDVCREILEGMREGAWKESTPVLGGHTHPDTPFYAVDAAIVGTDEBLLVLS 
STAEEGGLIVFVIDLNGRPYBEYPLNWDTTTMKDDDYLRRQMEAVVEASKLVKAGKDV 
SNPGLVGTLAWMLEASGCLGAEVWLDSIPKPEDVDMVTWLKMYPGMGFVYAVDSERDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5093.
                                    /codon_start=1
/transol_table=1
/product="Coenzyme F420-reducing hydrogenase, beta st/
/product="Coenzyme F420-reducing hydrogenase, beta st/
/protesd to oxidoreductase related to nitrite reductase/
/protein_id="AAMO2013.1"
/db_xref="GI:19887267"
                                                                                                                                                                                                                                                                      complement (7707. .9713)
/gene="MK0799"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RYKILPRCPKELAHFDGEVTVLELRTGADPGDVAAVVDALGRNLRALRAERRGERVRV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="synonym: MK0798" 6397. .7659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transI_table=11
/product="predicted Fe-S oxidoreductase"
/protein_id="AAMO2011.1"
/db_xref="G1:19897265"
/cb_xref="G1:19897265"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="MK0797"
5093. .6400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3561.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIRRVLSDARLEVSVIGEVTEDGVVKVSEGDESARVFDFREDRILGVSPR"
                                                                                                                                                                                                                                                                                                                                                   complement (7707. .9713)
/gene="MK0799"
                                                                                                                                                                                                                                                                                                                                                                                                                            EVEYTGKESLEGLLRKLRALGLEVRVAR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="tyrA_2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="Predicted cyclophilin type peptidyl-prolyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="MK0796"
translation="MRSIVTSEHGGHYLTEEFEWKLTEEVVEPGACALCGTCVAICPG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="tyrA_2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene="MK0797"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .somerase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              xref="GI:19887263"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .6400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .5096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MK0796"
                                                                                                                                                     subunit
```

gene

SgS

gene

Sg

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="MKO801"
/codon start=1
/transI table=11
/transI table=11
/product="oxidoreductase related to nitrite reductase"
/product="oxidoreductase related to nitrite reductase"
/protein_id="AAM02015.1"
/db_xref="GI:19887269"
/translation="MIOSPDGTYVNIALPPGFVKAEILRTVAELAERYASGEVHITV
/translation="MIOSPDGTYVNIALPPGFVKAEILRTVAELAERYASGEVHITV
ROGLEIPEVPSKLDDLIRKUREIGLEPGSTCPRVRQVTCCPGTRTCANALTDPVPLA
RKLHEBETLDVWVPAKVKIAVSGCPRGCTRPSENDLGLVAVGGDEWELLVGGYRVARLP
EQDVIDAVELTLEWYASEAPPGTKLHRFVTDRVSELRDVLERL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GIIELTDEGPRLTEECARKGTGNĆHTVCPRVDTAAYHLGLRIAGRDYEPLTGGYRRAV
GAVAADSDLRELGQDGGAVTALAŘYALEEGLADAVVGYTAGSAKKPCYTVVEDDEKVK
DLAGSKYTRVGLVEALAEADRGIERVALFEPCQVNGLAKIQHFEIVAKGARALRUI
DGSPAEKLPEVVATIGLFCTKNFEYEGLVKLLREKGVDIEDVERFDITSGKLRVEISG
GETKEYDVKEFEEAIPEGCRICNDFTARLADVSVGSVCTPEGVTTLLIRSETGEELVE
GAVEAGYLRLRDAVNGSDVRRLAKLKCDWAMKEAKNRLKEGRKVPPFWVGDYGGVITR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (10720. .11985)
/gene="MK0802"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    wHTH DNA-binding domain;
/protein_id="AAM02014.1;
/db_xref="GI:19887268"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIAHTVIETYRELAEEPQKERLADTIRKHGLRQFTEAIRRVLSQ" 9775. .10158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADGTFAVRLKVGPGGWVDDPDIFRAISGFLEEGYRAKFTDROOLEIHGIPATEIPEVV
ERLRETGLNTGSEGPLVRTIMACPGKDNCSSGILNTEELARKLEEELAEEPTPYKFKI
ALSGCTNSCVRPOHHDLGFAGAVRPGVDPEKCTGCGQCVDACKVDAIRIITVGGQAAV
ADTDYKRCVYCGKCINVCPEEARYAEKEGIIVMIGGKGGREPVEGARLDVFADPDSIP
RTTERSLEVAGVILAFYARDGEPTVHVEYSEGLGELPTQHRRRPVWIVPLLLAASIGA
                                LTDPAHPTI DGA PI PVPGTR PVLLDNVLAYVGADGVHAALL VKGTAWKI ASDVKVADA
TDVRPA I VSYGVDRYL I VYGGSELRAAEVR I EGTRLGVVREGTL I KEPGYSPTG I GVV
                                                                                                  /tränslation="MLPMLETLLLLAGPSQAAELGPADVPGPGTASNPPALALQSDHA
LIAWKSPEGLGIAVAKADGRVLVKTGIRTPVASYPAADWRGERDLATFVLTVPLWTP
EGPRIDVDLVEXSDNVCAVLWTGLSVRGDAAVPVRVDDSTPALVYRCEGKLRVRVEGN
VDGVWRWITDEQGQPVELKLSAPGPVERFSVSVAGRPVTTYLLVAYETPAGTEVVAVN
                                                                                                                                                                                                                                      /product="Uncharacterized protein"
/protein_id="AAM02016.1"
/db_xref="GI:19887270"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="MK0800"
9775. .10158
                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (10720.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RALDEWYEAVKDALERADVPRSGPE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MLADVPFVTVRRLNVTVRDVLRCVLGLRDVEVDTYFALLERGEA
TVYDLAEELDRDRTTVQKALKSLVYAGLVTRRKETRPRGGFVYVYKAVPFEEARKIVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="MK0800"
/codon start=1
/trans1 table=11
/product="Predicted transcriptional regulator containing
                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="MK0802"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="MK0801"
|0155. .10766
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0155. .10766
```

```
밁
                                                   á
                                                                                    문
                                                                                                          5
                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                           US-10-089-514-6 (1-322) x AE010371 (1-14192)
                                                                                                                                                                       8
                                                                                                                                                                                   Query
                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                   Match:
                                                                                                                                                                                                                                           No.:
                                                                                    6400
                            6460 GACGACGGTCATGAGGTAGTTATCACTGGTTCTAACCCTCACACCGCCGAACGCGTCGCC
43 oAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuAr 63
                                                     26 GluAlaGly-SerArg-----ThrLeuValValAspLeuValProProProGlyArgPr
                                                                                                               σ
                                                                                    AGGATCGCGATACTCGGCGGTACCGGCGCCATGGGCCGTCTTATCGCCCGCGAGCTCCGT
                                                                                                ArgSerValValQlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArg
                                                                                                                                                                                5.52e~05
323.00
52.55%
36.47%
19.76%
                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                      Gaps:
                                                                                                                                                                   14192
93
41
104
18
8
                            6519
                                                        43
                                                                                     6459
```

gene

CDS

```
RESULT 13
AE011181
LOCUS
                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                    JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6987
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63
                                                                                            Galagan, J.E., Nusbaum, C., Roy, A., Endrizzi, M.G., Macdonald, P., Fithugh, W., Calvo, S., Engels, R., Smirnov, S., Atnoor, D., Brown, A., Allen, N., Naylor, J., Stange-Thomann, N., DeArellano, K., Johnson, R., Linton, L., McEwan, P., McKernan, K., Talamas, J., Tirrell, A., Ye, W., Zimmer, A., Barber, R.D., Cann, I., Graham, D.E., Grahame, D.A., Guss, A., Hedderich, R., Ingram-Smith, C., Kuettner, C.H., Krzycki, J.A., Leigh, J.A., Li, W., Liu, J., Mukhopadhyay, B., Krzycki, J.A., Leigh, J.A., Li, W., Liu, J., Mukhopadhyay, B., Krzycki, J.A., Smith, K., Springer, T.A., Umayam, L.A., White, O., White, R.H., de Macario, E.C., Ferry, J.G., Jarrell, K.F., Jing, H., Macario, A.J.L., Paulsen, I., Pritchett, M., Sowers, K.R., Swanson, R.V., Zinder, S.H., Lander, E., Metcalf, W.W. and Birren, B. The Genome of M. acetivorans Reveals Extensive Metabolic and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complete
AE011181
                                                                                                                                                                                                                                                                                                                                                                                                        Methanosarcina acetivorans C2A
Methanosarcina acetivorans C2A
Archaea; Euryarchaeota; Methanomicrobia; Methanosarcinales;
                      11932238
                                                                 Genome Res.
                                                                                     Physiological Diversity
                                                                                                                                                                                                                                                                                                                                                                                         Methanosarcinaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AE011181.1 GI:19918739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Methanosarcina acetivorans str.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aArgValLeuGlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAl 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           oValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aAlaSerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPhe 250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pValArgAlaLeuAlaAhrAlaProProProHisGlnValLeuLeuAlaLeuLeuAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCCCGTTCGCGCTATGCTCGAGCACGCTCCCGAGGATGTGTACGTCCTCGGAACTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCGCACCACACGTTCCTGAGGGTTCCCTCCTCACCGACGTGACCTCCGTCAAGGTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  oValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGl 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGACGAAGCCCGTGAAGAGCTCCTCCGCGCCCTCAGACGCTTC 7140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGTATCGCCGGGCAGGATCCACGTCTTTACGCCGAGATCCAAGCCTTCAACCCCTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArg------LeuGlyValAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGTTGAGACCACCCCGGAGGAACACGATCGCACTATGGCCGTCGTTCAGTGCCTCACCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCGTAGTGGTCCCTGGACTCGCCGCGTTCGTCGTTATCTCGAGCGGAAAGGCGCTCGAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCTCTTCGGCCCCACGGTCCCCAGTCTCCGCGGTCAGACCGTCATCCTCACGCCCACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oMetPheAlaProAlaAla---GlyMetThrGlyArgProValAlaAlaValValThr--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               yMetAlaAlaGluLeuAlaAlaHisAlaPro---GlyValGlnHisValGlyLeuAsnPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGATGCCGACGTTGTGGTGGTTTCCGTCCCCATCTCCGTGACTGAAGACGTCATCCGTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCGAGCTC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATCGAAGAGGTCGCCAGC-----CCCGTGTATCGCCTACTCATGGACGTCGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGCTGTCCTCGCTGCAGGCGCCGCCATAGGCCGTTTCCTCCCAAGTCTCGAGCTCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -ArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgPr
                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 12180)
(bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genome.
AE010299
  12180)
                                                                 532-542 (2002)
                                                                                                                                                                                                                                                                                                                                                                                         Methanosarcina.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GACGTCGAGGCT---GCTCCGACCAACGTCGATGCCGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C2A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear BCT 03-APR-2002
on 526 of 534 of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (20-MAR-2002) Center for Institute, Nine Cambridge Center, (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Birren, B.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="GMP synthase (glutamine-hydrolyzing)"
/protein id="AAM07929.1"
/db_xref="GI:19918741"
/translation="wratkiitvvMvgQpCHLIHRAVRDLDMDTKIIPNVTPIEDILA
EEPDGLILSGGPEMERAGLCFDYVREIDIPILGICLGHQAIALAYGGHVHSGKKGGYA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GNYTTNILTVTNSAGTDPEVKTDYITVLEPSTPREEPVAAFTADVTSGABLTVNRTDO
STGSPTSWLWDFGDGTNSTGORPVHTYAAGSYTVNLITVBNDAGSDFELKTDYIEVSE
ISGSTVTLYFDPESSSVAENESTEISLVASNPPAGLSGYNLTVAIDDPAVAEIVGIEV
PTWALITENSTLPGTSIYMKTVDLEDSIKEEEGEVVLATLTVSGKEKGSANISIGVKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MMNIRSKYAVYIFPLLLILFFVGTASALPTVAHDRVQGEMYVAS
TANMDSHYSTNSFDVPMGTVVFARYYVGVMASGTPSSISATFNGTAFTSYSISGM
GVTWIFPRVTVDTVVPARSTYSSHWGDBQVGSTLVVVLENGRVEEYEWIAEGL
DWVIGYGSSTTYFNDTNIDLDDVDSASLYSTILTGYSSESLNGESLSGAVDSVSGAYF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (541. .4614)
/gene="MA4589"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /strain="C2A"
/db_xref="taxon:188937"
complement(541. .4614)
/gene="MA4589"
                    GAIEAGARGAAIGRNVFQHRDPVRLTRAICEIVHHRRPVEEALEQLK"
                                      I KMGADAVSMHINVGSNTEADQLEMLGKI SRDCTEWGMPLLAMMY PRGKKI TNPHD PV
NVAHAARI GAELGAD VVKTVYTGD PDS FRD VVRGC PV PVVI AGG PKTSTDMELLEM I D
                                                                                                                                                                                        /gene="deoC"
/codon_start=1
/transl_table=1
                                                                                                                                                                                                                                                                                                 6911. .7708
/gene="deoC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (5828.
                                                                                   /trānslation="MSEIGKKIRIERLMNRESRNMVIIPMDHGISDGPIEGLINITDT
VNRVAEGGANAVLMQKGMVKYGHRGYGHDIGLIVHISASSVLSPDPNAKVQVCTVEEV
                                                                                                                                                                                                                                                                                                                                                                  EIEIEVIEEDDILRGLGPKITVWASHADEVAILPEGFIHLARSDICEIEAMRHPTKPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (5828. .6397)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YFHNMDWIEENMPVEYFDFNGNGRIDFDDVVDMFAMI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .12180
                                                                                                                      /product="deoxyribose-phosphate aldolase"
/protein_id="AAM07930.1"
/db_xref="GI:19918742"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="guaA"
/note="synonym: MA4590"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LEDDSGDS I EPALLTGT I EVT I LSLLPDQEYAPKDLDGDGLYEDLTGNGEFSFVD I VA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Methanosarcina/mol type="genomic DNA"
                                                                                                                                                                                                                                                         /note="synonym: MA4591"
5911. .7708
                                                                                                                                                                                                                                                                                                                                              KGVQWHPEVSHTKKGDELLTNFFEVCDRY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AAM07928.
/db_xref="GI:19918740"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="cell surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="guaA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                          _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .ce protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   r Genome Research, Wh
Cambridge, MA 02141,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         acetivorans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Whitehead
```

ValAsp 35

21

SS

10828

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                               Score:
                                                                                                                         Alignment
                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SgS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                      8
0
::
                                                                                                                         Scores:
                                                                                                                                                                             /product="prephenate dehydrogenase"
/protein_id="NAMO7934.1"
/db_xref="G1:19918746"
/db_xref="G1:19918746"
/db_xref="G1:19918746"
/db_xref="G1:19918746"
/db_xref="G1:19918746"
/db_xref="G1:19918746"
/db_xref="G1:19918746"
/db_xref="G1:19918746"
/db_xref="G1:19918746"
/franslation="MNPDPEKPSSKTKVLILGGTGEMGQWFTRFFKERGYKVTVWGK
/franslation="MNPDPEKPSSGKTKVLILGGTGEMGQWFTRFKERGKKAGSLLMDFT
STKVKPVEAMQRFAPAGVEILGTHPMFPGTTIFGGTVILVPVKERSEKWFPVIRQL
FEEGGAHVEITTAAEHDRLYGVUGGTHFWAYISTOTTIDRLDFDIKGSRKFVSPVYSI
MLDFVGRILGQNPYLYALIQMENPGIPEVHEAFIEECEELSSLVRAHDEEGFVRKMKA
AARKYDDTAHALRRSDKLINSRLAEYETLLNSVGKVCGFSHVYSGRVHVGTVKKVGFN
EVILTKLASKGTSPHIKNKFIKLKLENLRLLSESELREWRREKLVHSVRDISVLIPEG
ADPEIVLGAVKTDKHLVACQISDIYDGTERTEDKNEIRETGRLGVTYRITIFGDCNAD
SVEAEVTALLCGLGCRVREKNLKLTE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="aroD"
/note="synonym: !
9118..9846
                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="MA4595"
/codon_start=1
/transl_table=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="aroE"
/codon_start=1
/transl_table=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MKKKSVWIKADEGGWEEQKDRITTGLESGADCVLVNPGDVEKVR
ELGNITVAAFAADNKSRADIVVVGKRGEGGTKPLPQEIPGSEDINAATLLMDKGVTV
GGYVVIKDKHYEHFAAEMGKICDYLLVTGTDWKVIPLENLIADLQHQKVKIIFGVKSA
EEARLAFQTLEAGADGVLLDGGNPQEIKDTIKAARELESESAELEAAVVTRVEPLGMG
DRVCVDTCNLMQRGEGMLIGSQASGMFLVNSESDDSPYVAARPFRVNAGAVHSYIKIG
EKTRYLSELRAGDPVTIVDSKGKQREGIVGRVKIESRPLMLIBAKARDRTLTAILQNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="aroE"
/note="synonym:
9843. .10685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MTQIGPFDLEKKAAVVAVILEKPLETSKKAAEKGADILEVRLDLIGIRNESSAAKIIREIKSETGLPVLVTMRSVAEGKWEGKEVDETELLVALLSILKOGP DAVDIELSASREDRDKVIKAAKAHGKTVIISSHDFSKTPSPQEMTATLAEMFLAEADIAKIWFGSMEDVLNLLKVTLEFKNTGKTVCTIAMGKPGKHTRVVAPLYGSVLTYASIENAVAAPGQLPVDEVKKIMEMLK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ETIKLVGKDGTPISVAKLEKGDEVLVRLEEGARHFGKKIEETIIEK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="MA4595"
10682. .12112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10682.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VFDIVYNPLETRLLKEAKVAGAKTVSGVLMLVYQGAEAFKLWTGVEAPAELMKKTVLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   / translation="MKRVFGVFGDPVGHSLSPAMHNSAFSALGMCTYHAFRVRPENL
RKAILGAEAMGFGGLNLTVPLKEEALKLDFIPPDFLAERIGNTVVFSETGEIRGYL
TDGLGARQALLEAAVEIRGSKVVVAGAGGAARAVAFOLAADGAEITVVNRTEERAVEL
AKDVAAASLPGKINGTGLSGLKELLRDADILINTTTLGMHPNTDTTIATAEELHSGLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="shikimate 5-dehydrogenase"
/protein_id="AAM07933.1"
/db_xref="GI:19918745"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/product="3-dehydroquinate dehydratase"
/protein_id="AAM07932.1"
/db_xref="GI:19918744"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /codon_start=1
/transT_table=11
/product="conserved hypothetical
/protein_id="AAM07931.1"
/db_xref="GI:19918743"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="aroD"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="MA4592"
/codon_start=1
                  0.00748
272.00
45.63%
28.90%
16.64%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .9846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .12112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10685
                                                                                                                                                                                                                                                                                                                                                                                                                             _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MA4594"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MA4593"
Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
12180
76
44
123
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein'
                                                                                                                                                                                                                                           RESULT 14
AE013358
                                                                                                                  VERSION
KEYWORDS
                      REFERENCE
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                    SOURCE
                                                                                                                                                              ACCESSION
                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                         FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-089-514-6 (1-322) x AE011181 (1-12180)
                                                                                 ORGANISM
  AUTHORS
                                                                                                                                                                                                                                                                                                        11459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22
                                                                                                                                                            complete
AE013358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N
                  Archaea; Euryarchaeota; Methanomicrobia; Methanosarcinaceae; Methanosarcina.

1 (bases 1 to 9888)
                                                                             Methanosarcina mazei Gol
Methanosarcina mazei Gol
                                                                                                                                                                                                    AE013358
Methanosarcina mazei
Deppenmeier, U.,
                                                                                                                                             AE013358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ||| ::: |||::::||| :::||| :::||| :::||| :::|||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCGGAACTTGACGCAGCCATCCCTGAAAACGATATAGTAATAGTATCCGTTCCGATCAAC 10918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCCTGGTA 11467
                                                                                                                                                                                                                                                                                                                                             AlaLeuVal
                                                                                                                                                                                                                                                                                                                                                                                     GAAAACCCGGGTATTCCGGAGGTGCATGAAGCATTTATAGAGGAATGTGAGGAACTTTCC 1145
                                                                                                                                                                                                                                                                                                                                                                                                                       SerAsnProArgAlaAlaSerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuAlaLeuLeuAlaArgValLeuGlyGlySerProGluValTyrGlyAspIleGlnArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGGCTTGATTTCGACATCAAGAAATCCAGGAAATTCGTAAGTCCGGTCTACAGTATAATG 11338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCTCGGTAGTACAGGGGCTGACGCATTTTGCTTATATCTCAATAGGGACGACCATTGAC 11278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuValGluGlyGlyGlyGlyArgProValArgLeuThrAlaGluGluHiaAspArgThr 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACGGTAATCCTTGTCCCGGTAAAGGAGCGCTCGGAAAAATGGTTTCCCGGTAATCAGGCAG 11158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Proval-----AlaAlaValValThrArgAspGlyProGlyValThrAlaLeuLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValGlnHisValGlyLeuAsnProMetPheAlaProAla---AlaGlyMetThrGlyArg 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AspThrLeuSerValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaPro---Gly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTAACGGAAGAGACCATTGCAGAAGTCGCCCCGAAGATGAAAGCAGGGAGCCTCCTCATG 10978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ValAlaLeuLysAlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCGCCAGGAAACTGAATGTACCCTTTGCT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuValProProGlyArgProAspAlaCysLeuValGlyAspValThrAlaProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGTTTTTTTAAAGAAAGGGGTTATAAGGTTACGGTCTGGGGAAAAAGGGGGGCAAGGTGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgLeuGlyValAspValArgAlaLeuAlaÁlaThrAlaProProProHisGlnValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTTTTGAGGAAGGCGGAGCCCACGTTGAAÁTCACGACCGCAGCCGAACACGACAGGCTG 11218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATTTTACCTCCACCAAGGTAAAGCCTGTTGAAGCCATGCAGAGGTTTGCACCTGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyLeuLeuArgGluAlaGlySerArgThrLeuVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAla 191
                                                                                                                                         genome.
AE008384
.1 GI:20905730
  Johann, A.,
                                                                                                                                                                                                      strain
                                                                                                                                                                                                    9888 bp
rain Goel,
  Hartsch, T.,
                                                                                                                                                                                                      DNA
section
    Merkl, R.,
                                                              Methanosarcinales;
                                                                                                                                                                                                    linear
140 of 3
                                                                                                                                                                                                        379
```

151

11038

95

75 10858

07-FEB-2003 the

```
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Martinez-Arias, R., Henne, A., Wiezer, A., Baeumer, S., Jacobi, C., Brueggemann, H., Lienard, T., Christmann, A., Boemecke, M., Steckel, S., Bhattacharyya, A., Lykidis, A., Overbeek, R., Klenk, H.-P., Gunsalus, R.P., Fritz, H.-J. and Gottschalk, G.
The genome of Methanosarcina mazei: evidence for lateral gene transfer between bacteria and archaea transfer between bacteria and archaea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Martinez-Arias,R., Henne,A., Wiezer,A., Baeumer,S., Jacobi,C., Brueggemann,H., Lienard,T., Christmann,A., Beemecke,M., Steckel,S., Bhattacharyya,A., Lykidis,A., Overbeek,R., Klenk,H.-P., Gunsalus,R.P., Fritz,H.-J. and Gottschalk,G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Deppenmeier, U., Johann, A., Hartsch, T., Merkl, R., Martinez-Arias, R., Henne, A., Wiezer, A., Baeumer,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (23-AUG-2001) Goettingen Genomics Laboratory, Institute for Microbiology and Genetics, Grisebachstrasse 8, Goettingen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2125824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 9888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Germany
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transl_table=11
/transl_table=11
/product="GMP synthase [glutamine-hydrolyzing]"
/product="GMP synthase [glutamine-hydrolyzing]"
/product="GMP synthase [glutamine-hydrolyzing]"
/protein id="AM90966.1"
/db_xref="GI:20905732"
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGQFCHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGqFTHLIHRTVRDLDMDTKIIPNVTPIEEILA
/translation="MRELKILVVNNYGqFT"
/tra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transI_table=11
/product="conserved protein"
/protein_id="AAM30965.1"
/protein_id="AAM30965.1"
/db_xref="G1:20995731"
/db_xref="G1:20995731"
/translation="MKRHRIATTISDKHWKLLKIHAEKFETQRKALEIALECLENNTE
/translation="MKRHRIATTISDKHWFDTIDCKDNGDYYLLILTHSLGLNNSKLNLMT
LQKPLNECSLEEVNGLMIVFRTSHMFDTIDCKDNGDYYLLILTHSLGLNNSKLNLMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="MM1270"
complement(1025..1594)
/gene="MM1270"
/EC_number="6.3.5.2"
                                                                                                                           /gene="MM1272"
3000. .4142
                                                                                                                                                                                                                                                                                                    / translation="MTMSEIGKKIRIERLMNRESRNNVIIPLDHGISDGPIEGLINIT
DTVNRVAEGGANAVLMOKGMVRYGHRGYGHDIGLVVHISASCUSPDENAKVQVCTVE
EVIKMGADAVSMHINVGSDTEADQLEMIGKISRDCTEMGMPLLAMMYERGKKITNHDL
EVNVAHAARIGAELGADVVKTVYTGDPDSFRDVVRGCPVPVVIAGGPKTSTDMELLEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/trans1_table=11
/product="2-dehydro-3-desoxyphosphoheptanote aldolase"
/protein_id="AAM30967.1"
/protein_id="AAM30967.3"
/db_xref="GI:20905733"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="MM1271"
2056. .2859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (1025. .1594)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CKSLFITYGADIESKTSGNIIFIKVFKDKTL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="MM1269"
242. .817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YGVQWHPEVSHTKKGEELLMNFFEVCDLY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:192952"
242. .817
                                                                                                                                                                                                                                                                IDGAMEAGARGAAIGRNVFQHGDPVRLTRAICEIVHHRRPVEEALEQLK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="MM1271"
/EC_number="4.1.2.15"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Methanosarcina mazei Go1"
/mol_type="genomic DNA"
/strain="Goe1"
                                                                                  'gene≈"MM1272"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="MM1269"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .9888
                                         number="4.6.1.3"
start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Merkl,R., Schmitz,R.A., Baeumer,S., Jacobi,C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sg
```

```
/gene="MM1275"
/EC numbar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="MM1273"
4203. .4931
/gene="MM1273"
/EC_number="4.2.1.10"
                                                                                                                                                                                                             /gene="MM1276"
7260. .8795
/gene="MM1276"
/codon_start=1
/trans__table=11
/translation="MSQVKWKISLLFALITLSIFFSLLLSSDKFTESMGNEVNTTAMA
GVSGENQVISLMNRLETGNGSEARLNAATELGNLGEPAASAIIEKMEAENPSLGGEIK
SYMLLALLETGDKRAENIISEYLGKEEASNAAVADGVQSKGEVPEDIMLAIQAKDKAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SGAHVEITTABEHDRLVSVVQGLTHFAYIAIGTTIDRLDFDVKKSRKFVSPVYSIMLD
FVGRILGQNPYLYALIQMENFGVPEVHEAFIKECESLIVKAHDEEGFVRKKAAAR
KYDDTSHALRRSDKLINSRIIEYETILNSTGKVCGFSHIYSGNIHVGRLEKVRPNEID
LMKLVSKGTAFNIKNRFITLKLENLRPLSEAELREWRKENLEHSVRDISVIPEGADF
EVVLAAVSTNKHLADCKISDIYKGVNGTLLEKKGSTAEKLGVTYRISIFGDCDADSVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/trans1 table=11
/product="Shikimate 5-dehydrogenase"
/product="Shikimate 5-dehydrogenase"
/protein_id="AAM30970.1"
/protein_id="AAM30970.1"
/db_xref="GI:20905736"
/translation="MKOYFGYFGDFVGHSLSPAMHNAAFSALGMDCIYHAFRVTPEKL/translation="MKOYFGYFGDFVGHSLSPAMHNAAFSALGMDCIYHAFRVTPEKLSKAILGAEMGFGGINLTVPLKEKALKLDFVKPDFLAKRIGAVTLVFGKKGDIQGYN
TDGPGAKQALLDTGVEIRGSRMVVAGAGGAARAVAFOLAADGADITVINRTEERAVGL
AREISAADLPGKIRGTGLSGLKELLRDADVLINTTTLGMHPNTDATIVTAEELHSGLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="Prephenate dehydrogenase"
/protein_id="AAM30971.1"
/protein_id="AAM30971.1"
/db_xref="GI:20905737"
/db xref="GI:20905737"
/db xref="GI:20905737"
/translation="MNTDYDAGKTKVLILGGTGEMGQWFTRFFKERGYEVTVWGKGGK
/translation="MNTDYDAGKTKVLILGGTGEMGQWFTRFFKERGYEVTVWGKGGK
IEVAKKLDVPFALDLEAVIPESDIVITGVPINATEETIAEIAPKMKAGSILMDFTSIK
VGPVEAMRKFAPKDVEILGTHPMFGPTIPTIRGQTVILVPVKGYSEKWFPVIRQLFEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="MM1275"
5767. .7185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="MM1274"
4928. .5770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/trans1_table=11
/product="3-dehydroquinate dehydratase"
/protein_id="AM30969.1"
/protein_id="AM30969.1"
/protein_id="AM30969.1"
/db_xref="GI:20905735"
/trans1ation="MTQIGSFDIEKKTAVVAVILEKPLENSKKAAEKGADILEIRLDL/trans1ation="MTQIGSFDIIVTSRSGAEGGKNDGKEEDRTGLLINLLSLKDGPLGIRTPERABAVIREIKAETGIPIIVTSRSGAEGGKHTGKEDRTGLLINLLSLKDGPDAIDIELSAGMKERNRVIKAAKDRETAVIVSSHDFLKTPPLQNWRTIIEEMFLAGADIAKLAVNFLSVGDTLAKLRVTLDFKDAGKSVCTIAMGSQGKHTRVVAPFYGSVLTYASI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               / translation="MKKKSWHIKADBGGWEEQKERITTGLESGADCYL-VNPGDVEKVR
ELGNITVAAFARDNKSGADIVVVGKRGEGDGTKPLPQE GSFDVNAATLLTDKGVTV
GGYVVIKDRSYERFAAEMKICDYLLYTGTDWKVIPLENLIADLQREKVKIIFGVKSA
EBARLAFGYILETGADGVLLDSGNPOBIKDTIKAARELESESTELESAVVTRUBPLGWG
DRVCVDTCNIMQRGEGMLIGSQASGWEIVNSESDDSAAREPFRVNAGAVHSYIKIG
DKYRYLSELQAGDSVTIIDSRGKQREGIVGRIKIESRPLMLIEAKAGGRTLTAILQNA
ETIKLVGKGGTPISVAKLKKGDEVLVRLEEGARHFGKKIEFTIIEK"
                                                                                                    /product="hypothetical protein"
/protein_id="AAM30972.1"
/db_xref="GI:20905738"
                                                                                                                                                                                                                                                                                                                                                                                                                                                  TEVTALLCGLGCRIREKNLKFS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VFDI VYNPLETRILREARTSGAKTI SGVLML VYQGAEA FRLWTGVE PPLELMKKTVLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ESNASAAPGQLPVDEVKKIMEMLK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="3-dehydroquinate synthase"
/protein_id="AAM30968.1"
/db_xref="GI:20905734"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4928. .5770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="MM1274"
/EC_number="1.1.1.25"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     number="1.3.1.12"
```

```
Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-6 (1-322)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5845
6295
                                                                                                                                                                                                                                                                                      6115
                                                                                                                                                                                                                                                                                                                                                                                  6055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5995
                                                                                                                                                                                        6175
                                            172
                                                                                                                                                                                                                                                                                                                                                                                                                               96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTGGAAAAACGAAGGTTCTGATCCTTGGCGGGACCGGAGAGATGGGGCAGTGGTTCACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
GTCTCAGTAGTGCAGGGGCTTACTCATTTTGCTTATATTGCTATAGGCACAACCATTGAC 635
                                                                                                                                                                                                                             ProvalAlaAlaValValThrArg-----AspGlyProGlyValThrAlaLeuLeuArg
                                                                                                                                                                                                                                                                                                                              ValGlnHisValGlyLeuAsnProMetPheAlaProAla---AlaGlyMetThrGlyArg 133
                                                                                                                                                                                                                                                                                                                                                                                GATTTTACCTCAATAAAGGTAGGACCTGTTGAAGCGATGAGAAAGTTTGCGCCCAAAGAT 6114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAACAGAAGAAACCATCGCAGAAATCGCCCCAAAAATGAAAGCTGGAAGCATTCTTATG 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---GACCTTGAGGCAGTTATCCCTGAAAGTGACATAGTGATAGTTTCCGTCCCGATCAAT 5994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProGluLeuAlaAlaLaLaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAsp 75 ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCGCGAAAAAACTGGACGTACCTTTTGCTTTA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuValProProProGlyArgProAspAlaCysLeuValGlyAspValThrAlaProGly
                                                                                                                  LeuValGluGlyGlyGlyArgProValArgLeuThrAlaGluGluHisAspArgThr 171
                                                                                                                                                                                     ACAGTAATCCTTGTTCCGGTAAAAGGGTATTCGGAAAAATGGTTTCCGGTAATCAGACAG 623
                                                                                                                                                                                                                                                                                 ĠŦŦĠAAATTCTŦĠĠĠACGCACĊĊĊĂŦĠŦŤŦĠGŦĊĊĠACAATTCCCACAATAAGGGĠĠCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValAlaLeuLysAlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAla 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CGTTTTTTCAAAGAAAGAGGCTATGAGGTTACTGTCTGGGGAAAAGGCGGCAAGATAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyLeuLeuArgGluAlaGlySerArgThrLeuVal------ValAsp 35
                                       ThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAla 191
                                                                                                                                                                                                                                                                                                                                                                                                                             AspThrLeuSerValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaPro---Gly 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="methyltransferase"
/protein_id="AAM30973.1"
/protein_id="AAM30973.1"
/db_xref="GI:20905739"
/translation="MDETKEIIRNYMDHRSEIYSTGIVEYSEEERIAMKNMLASKLGG
RKRLEILDVGTGPGOLALMFAEMGHHLTAVDLSASMLEKARKWALQRSLDINFIQGDA
ENLQLPDAHFDVVSSKFLLWTLPDPKKALLEMKRVLKKDGMIIAIDDDWYSSGIFLKS
IRTVSGLIRSYKERNRHDPFKNKYQLIKNDLPLYSLKPGRVFGLLNDAGFEEINIERM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESLARSMTSEYGNDTDLLEBALKABEQNSTLYTSFVLSNFEFESENETEILLQALKS
EKGYVRVSAAWALGQKKEKAATDPLLKNLAQDYPLAGIBAVMALGAMGDERAVNTLMN
ELKNNGKDY IRSSTAIALGKLEABAVPYLI ERLRDTRASVRSNSALVLGKWGDERAV
EPLKNILESGKDSEGRRKDSLMTGVDVRKSTVLALGGIGGTESTQTLIGVINDEGEIP
DVRVAATIALGNIGSPEAVNVLKKTYENQNMMMVRNGALIALGKTENQEAAEFFIKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (8942. .9691)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DSLCLSARKHGSLLDKLDYSHPIYFIRAVKK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (8942. .9691)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IGDKDFGVSAREALINMGETAVEPLIENLKTEDQKIKDETALILIEIGDPRAVEPLIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="MM1277
/EC_number="2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="MM1277"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                x AE013358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.0301
256.00
46.77%
27.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     number="2.1.1.-"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           start=1
[_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1-9888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9888
71
52
119
21
                                                                                         6294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . 5904
                                                                                                                                                                                                                                    151
                                                                                                                                                                                                                                                                                    6174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5937
```

ঠ ₽ ફ 8 ঠ 문 ક 밁 ફ 밁 र् 문 र 밁 र् 문 5 밁 ş

밁

```
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
BX957223
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                251 aAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (15-FEB-2004) Department of Microbiology, University of Washington, University of Washington Genome Center, Seattle, WA 98195-7242, and the Genome Analysis Group, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6164
This strain was formerly known as LL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hendrickson, E.L., Kaul, R., Zhou, Y., Bovee, D., Chapman, P., Chung, J. Conway de Macario, E., Dodsworth, J., Grett, W., Graham, D.E., Haydock, A.K., Kang, A., Land, M.L., Levy, R., Lie, T.J., Major, T., Moore, B., Porat, I., Overbeek, R., Palmeiri, A., Rouse, G., Samphimmachak, C., Soll, D., Whitman, W.B., Larimer, F.W., Olson, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 (bases 1 to 268122)
Leigh, J.A., Olson, M.V. and Larimer, F.W.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Methanococcus maripaludis S2
Methanococcus maripaludis S2
Archaea; Euryarchaeota; Methanococci;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Complete Genome Sequence of the Genetically Tractable Hydrogenotrophic Methanogen Methanococcus maripaludis J. Bacteriol. 186 (20), 6956-6969 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complete genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BX957223 BX950229
BX957223.1 GI:45047859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and Leigh, J.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Methanococcaceae; Methanococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Methanococcus maripaludis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BX957223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AGCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAAAACCCTGGAGTTCCTGAGGTGCATGAAGCATTTATAAAAGAGTGTGAGGAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuAlaLeuLeuAlaArgValLeuGlyGlySerProGluValTyrGlyAspIleGlnArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgLeuGlyValAspValArgAlaLeuAlaAlaThrAlaProProProHisGlnValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerAsnProArgAlaAlaSerAlaArgArgAla-LeuAlaGluAlaLeuArgSerPheAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTCGACTTTGTGGGCAGGATCCTGGGACAGAATCCCTATCTCTATGCCCTGATTCAGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGCTTGATTTTGACGTCAAAAAGTCCAGAAAATTCGTAAGCCCCGGTTTACAGTATAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 268122)
/locus_tag="mmp1422"
//ocdon_start=1
//codon_start=1
//codon_start=1
//evidence=not_experimental
//transl_table=11
//transl_table=11
//product="Aldehyde dehydrogenase:SecY protein"
//product="Aldehyde dehydrogenase:SecY protein"
//protein_id="CAP30978.1"
//protein_id="CAP30978.1"
//db_xref="01:45047860"
//db_xref="01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /locus_tag="MMP1422"
227. .1555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Methanococcus"
mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="secY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="secY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          db_xref="taxon:267377"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             strain="S2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   268122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .1555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              268122
udis S2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            maripaludis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Methanococcales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              genome; segment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BCT 06-OCT-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5/5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6474
```

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                              Sg
                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                      sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LITLVGGAILVSLSTGLSGFINWILSPIGFTVINEATKITGWPNVYMTVSELAIPTVI
DIIENSVGNIWLLIAGISGILLSFVSERHDKOKIDIKKALYLTHLIATVYAATKGILF
EVALMTPALAIGIGIFAGOIENIKRYEKVESFILYPVIGILSVITLIKYGGELFNI
VPTTYVPIAVYLSIIALLVLAVYKIIDIISEKEQAVKKVFGILLAFMLVEPSMAAAVP
FYTAPTMNNGNMDSLSWIKSETPENSVTCWNDNGHIYTWATEAGVVTFDGGSQNTPRA
YWVGHAFSTSDENLSVGILRMLATSGDSAYDDDSILIKKTGSIKDTVDILNKILPLTR
TEAKASLVNNYDLTDAEAEEVLDLTHEKVTNPDYLITYMRTSLASVWSMFGNWNFSL
PASTENSDRENGYYQOLGGSAQDINGTVVYLPLGETDSYRVINLEITDSEIKSANA
                                                                                                                                                                            order(2648. .2707,2999. .3067,3086. .3145,3173. .3232, 3257. .3310,3320. .3379,3413. .3481,3611. .3670,3704. 3767. .3865,3863. .3922,3950. .4018,4055. .4123) /locus tag="MMMP1424" /note="13 probable transmembrane helices predicted by
                                                                                                                                                                                                                                                                                                                                  /note="Signal predicted by SignalP 2.0 HMM (Signal peptide probabilty 0.992) with cleavage site probability 0.966 at residue 37"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="Oligosaccharyl transferase, STT3 subunit"
/protein id="CAF30980.1"
/db_xref="G1:45047862"
/db_xref="UniProt/TrEMBL:Q6LXC8"
/translation="MGEFLNKVSDFFKKNEKIKIILILFIGMMSFQIRAQTADMAFT
DNSYLQDMFSDDNGRMYLTALDPYYYLRMTENYVNNDYSNVGETTVGIDGENIPYDTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /locus_tag="MMP1422"
/note="10 probable transmembrane helices predicted by
TMHMM2.0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FLAAAADFTGALGGGTGVLLTVSIVYRLYEQLVQEQLSELHPSIAKFIRK"
order(317. .385,443. .511,572. .640,650. .709,728. .796,
854. .922,995. .1063,1181. .1249,1352. .1420,1430. .1489)
                                                        /locus_tag="MMP1425"
5262. .5801
                                                                                                                                               /note="13 probable transmembrane helices predicted by TMHMM2.0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VIDSNNQTSMQSPNFHKLILKVNGNVYEQETNENGDYSEIVRLEKLSDGTYQVYAWVS
SKNLEDSIYTKLHFLDGYGLEKISLEKESVDPTSYGIQPGFKVYSVDYGTDYLN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QYAPPGREAGLVSALSIATVLVYSVWNSIDSTVTIMNAAFWVPAIMSIFLGIPVFFIV
RRNTASNIGGLVGALLLISSPSLLYKTSAGFSDTPIFEILPLLFIVWMIMEAIHEQEN
SKXSGIFGGIAAILIGLYPWMWSGWWYAFDITAGFLVLYTAYEYLTKSKNLKNVITTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="7 probable transmembrane helices predicted by TMHMM2.0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (order (1613. .1678, 1853. .1918, 1964. .2020, 2042. .2107,2153. .2218,2255. .2320,2423. .2479))
/locus_tag="MMP1423"
/note="7 probable transmembrane helices predicted by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MVDALLKQFTAGVTKKDSVFTPTQLKNGKLCVEGGYLSLPRMILMKKAMEEYKIVLVL
WAIEAFFGILSILYTKYFGFNIF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="CAF30979.1"
/db_xref="G1:45047861"
/db_xref="G1:45047861"
/db_xref="Uniprot_TremBL:06LXC9"
/translation="MDLYFVLSALFCFVISLIFTKFMIKKMVNYKYGYDLHKADKIKV
/translation="MDLYFVLSALFCFVISLIFTKFMIKKMVNYKYGYDLHKADKIKV
AEMGGLSPVVVSSVVMLFFNLALSLSIFDEFFVGVIDISRLKSKEKITUTFLIGFPV
AFFLKLGFLPSSLLILIGIFVSSNLTMMLAGENGLEIGMGILLGLFMAVVCTMNGDIFF
EKVLILFLAAYLGLLYYNRYPAKVFPGDTGTLPIGAFLATIAVWRGFIPELFILMIPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl table=11
/product="putative glycosyl transferase, family 4:Aldehyde
dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(1595. .24
/locus_tag="MMP1423"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (1595. .2494)
/locus_tag="MMP1423"
                                                                                                                                                                                                                                                                                                                                                                                          /locus_tag="MMP1424"
/note="Signal predict
                                                                                                                                                                                                                                                                                                                                                                                                                                                            2591. .2701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2591.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2591.
/locus_tag="MMP1425"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /locus_tag="MMP1424"
2591. .5149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              evidence=not_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    locus_tag="MMP1424"
EC_number="2.-.-"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .5149
                                                                                                                      .5801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .2494)
                                                                                                                                                                                                                                                                          .3754,
                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SdD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SG
                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="conserved Hypothetical Protein"
/protein id="CAP30983.1"
/brotein id="CAP30983.1"
/db_xref="G1:45047865"
/db_xref="G1:45047865"
/db_xref="G1:45047865"
/translation="MFVPEEIIETIKMIEYQNLDIRTTTLGINLKDCADKDLDLLKEN
/translation="MFVPEEIIETIKMIEYQNLDIRTTTLGINLKDCADKDLDLLKEN
/translation="MFVPEEIIETIKMIEYQNLDIRTTTLGINLKDCADKDLDLLKEN
/TOKLTSLGGNLVETANKVSQKKGIFINTEKYTEKYLLRSIFKLTKTDKVCASVNVAT
TKAGINMYAVKKMGEIVKETSEITKDAIGCAKIVVFCNAPEDNPFMAGAFHGPGEGDA
VINAGVSGPGVVRAVVEQLKGKDIGTVSDEIKKTAFKITRMGELVGKEVANELGVNFG
IVDLSLAPTPAIGDSIANILEAVEGLEKLEAMTCVCSVGLDMIAVPGKTPASTLSAIMAD
SGAFITVSEDAGMIEAVEVGALKLEKLEAMTCVCSVGLDMIAVPGKTPASTLSAIMAD
SMAIGMINKKTTAVRIIPVPGKDVGDYVEYGGLLGTAPIMPVSEFSSEELIERGGRIP
                         /locus_tag="MMP1429" complement(8114. .8431)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /locus_tag="MMP1427" 6449. .7825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="UniProt/Trembl; Q6LXC6"
/translation="MILSDKDIFNYVTSKLEPFNSKFVGPCSYDVTLGSEFIKYN
FURDVVDVKYTLHSKFKIENSVMVCFLANHHLDETIIKYKEKYNVDCVVSGGLLGTTNE
EDVVDVKAYNHSKFKIENSVMVCFLANHHLDETIIKYKEKYNVDCVVSGGLLGTTNE
YVELFNDVCAQYQGRSSFGRVFLQTHQTAGMIDSGFKGKITLEIVAYDKFVILYKNQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5825. .6445
/gene="dcd"
                                                                                                                complement (8114. .8431)
                                                                                                                                                                                                                                                                                            /product="hypothetical protein"
/protein id="CAP30984.1"
/brotein id="CAP30984.1"
/db_xref="UniProt/TraMBL:Q6LXC4"
/translation="MAKNQDAGLSTSAGLVRYMDEDVSKIKIAPEKVLGLTVSIIIIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APIQSLTN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /trānslation="MAIEILRLGHRGERDKRISTHVALTSRALGAEKIIFTEEDKHVK
ESVERIVEAWGGEFKFEVVKSWRSYAKRFKDNGIVVHLTMYGENINKIMTEIREDISK
TNKNLLLIIGAEKVPREAYDLADYNLSVGNQPHSEVAALAIFLDRFTEGKTLYSEYDD
                                                                                                                                                                                                                                                                                                                                                                                                                                               /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /cransl_table=11
/producT="Bifunctional dCTP deaminase/dUTP diphosphatase"
/protein_id="CAF30982.1"
/db_xref="GI:45047864"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="dcd"
/locus_tag="MMP1426"
/note="synonym: dut"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AKIKVTPSKSEKCVFVEKD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
/producT="Protein of unknown function DUF127"
/protein_id="CAF30981.1"
/db_xref="G1:45047863"
                                                                                                                                                                            /locus_tag="MMP1428"
/note="1 probable tra
                                                                                                                                                                                                                                                                      AVLNYGILI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /locus_tag="MMP1428"
7898. .8059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /locus_tag="MMP1427"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VGQLIFSKTLSPADIGYSDRKCSKYAGQTSVMASLIKKDFETNEEE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    locus_tag="MMP1428"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7898. .8059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="Citation: J. Biol. Chem. 278:11100-11106(2003)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /EC_number="3.5.4.13"
/EC_number="3.6.1.23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    db_xref="UniProt/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              locus_tag="MMP1426"
                                                                                                                                                                            probable transmembrane helix predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Trembl:Q6LXC7"
```

```
Ş
Search completed: October Job time: 5131.02 secs
                                                                 밁
                                                                                              ঠ
                                                                                                                                 밁
                                                                                                                                                         S
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                 ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-6 (1-322) x BX957223 (1-268122)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
Pred. No.:
                                                              80847 ATTAAAAACTGCGAAAATATAAGTGAAATTGTC---CAGAATAAGGATAGG 80894
                                                                                                                                                                                                  80727
                                                                                                                                                                                                                                                                                                                                                                                                    80547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ### 10307 ATAATTTCTGTCCCTATAAATGTTACAGAATCTGTGATTAAAGAAGTTGCTCCGCATGTT 80366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80253 GGT---GTAACTTACACAAATAACAATATCGATGCTGCA---GAAAAAGGAGATATTGTA 80306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80193 TACGATGTACTCGTATCTGGAAGGGATGTAATAAAAGGAAAAGAAGTTGAAAAAAGAACTT 80252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80787 TACCTATATGCAGATATCCAGATGCACAACCCGCAAATAAAAACCATTCACGAAACATTC 80846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80427 GCAGAATTTTCAAAAACTGGAGTATTTGTACTTCCGACACACCCTATGTTTGGGCCAGAA 80486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 80667
                                                                                                                                                                                                                                                                                                                                    80607
                                                                                                                                                                                                                                                                                                                                                                                                                                    144
                                                                                                                                                                                                                                 204
                                                                                                                                                                                                                                                                                              184 LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      109
                                                                                  244 AlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArg 260
                                                                                                                                                           224 GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                     164 ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 128 AlaGlyMetThrGlyArgProValAlaAlaValVal------ThrArgAspGly 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69 LeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeuMet 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29 SerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeuVal 48
                                                                                                                                                                                                                  AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro 223
                                                                                                                                                                                                                                                               ATTTCACTTGGATCCACTCTAAAAGATCTTGGAATAGATATAAAAGAATCCAGAAACTTT 80726
                                                                                                                                                                                                                                                                                                                               TCCCCAAAAGAACACGATAAAATAATGGGTGTAGTTCAAGGGCTAACTCATTTTGTATAT 80666
                                                                                                                                                                                                                                                                                                                                                                                                CATTITTTGAAAAAATTAAAGAATTTTTAGAAATTGAAGGTGCAAAAGTAATTGTTGTA 80606
                                                                                                                                                                                                                                                                                                                                                                                                                              ProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgProValArgLeu 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaAlaHisAla---ProGlyValGlnHisValGlyLeuAsnProMetPheAlaProAla 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal 68
                                                                                                                                                                                             GCGTCGCCAATTTACGAACTTATGATTAATATTATTGCACGGATAATCGGCCAAAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGlyMetAlaAlaGluLeu 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.24
239.00
47.47%
26.07%
14.62%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     268122
67
55
127
8
                                                                                                                                                              243
                                                                                                                                                                                               80786
```

5, 2005, 15:36:38

(oigau) ^{yhiolg} alebg eirit

```
Result
No.
                                                                                                                                                                                                                                                                                             Command line parameters:

-MODEL-frame+ p2n.model -DEV=xlh
-Q=/Cgn2 1/USPTO_spool_h/US10089514/runat_04102005_105743_8027/app_query.fasta_1.1621
-Q=/Cgn2 1/USPTO_spool_h/US10089514/runat_04102005_105743_8027/app_query.fasta_1.1621
-DB=N Geneseq -QFWT=fastap -SUFFIX=rng -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DCCALIGN=200 -THR_SCONE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER=US10089514_@CGN 1 1 860 @runat 04102005 105743 8027 -NCPU=6 -ICPU=3
-NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -DSPELOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Title:
Perfect score:
                                                                                                                                                                                                                                                                                 Database :
                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
1635
1635
1588
1588
661.5
                                                           Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq length: 0
seq length: 2000000000
                                                                                                                                                  4:
5:
6:
7:
9:
110:
111:
13:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     October 4, 2005, 21:38:23; Search time 565.456 Seconds (without alignments) 3371.006 Million cell updates/sec
 100.0
100.0
97.1
97.1
40.5
                                                           Match
                                                                                                                                                                                                                                                                       N_Geneseq_16Dec04:*
1: geneseqn1980s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
                                                                    Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4390206 seqs, 2959870667 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSGFPRSVVVGGSGAVGGMF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-6
1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Copyright
                                                                                                                                                                                        geneseqn2003as:*
geneseqn2003bs:*
                                                                                                                                                                                                                      geneseqn2001as:*
geneseqn2001bs:*
geneseqn2002as:*
                                                                                                                                                                                                                                                             geneseqn1990s:*
                                                                                                                                                                                                            geneseqn2002bs:*
                                                                                                                                                                                                                                                    geneseqn2000s:*
                                                                                                                                                geneseqn2003ds:*
geneseqn2004as:*
geneseqn2004bs:*
                                                                                                                                                                                geneseqn2003cs:*
                                                          Length
969
969
3305
12391
888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd
                                                            BB
          AAF86411
AAL50182
ABZ69799
ABZ69798
                                                           ij
                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ..........HCQELFRTLHRTDDEGEKDR 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8780412
         Aaf86411 4-amino-4
Aa150182 S venezue
Abz69799 Plasmid p
Abz69798 Plasmid p
 Aat59269
                                                          Description
 Streptomy
                                                                                                                                                                                                                                                                      RESULT 1
AAF86411
 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            იი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      റ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                O
                                                                                                                                                                                                                                                                                                                                  ი
                                                                                                                                                                                                                                                                                                                                                                                                                 იიი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     იი
                                                                                                                                                                                                                                                                                                                                                                                   29-SEP-2000; 2000WO-JP006783
                                                                                                                                                  Streptomyces venezuelae
                                                                                                                                                                                                                       22-JUN-2001 (first entry)
                                                                                                                                                                                                                                           AAF86411;
                                                            05-APR-2001.
                                                                              WO200123542-A1
                                                                                                                                                                                                                                                                                                                                                             150
149
149
149
149
148
148
147.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                      227
225.5
225.5
225.5
224
224
224
216
213
210
200
177.5
1177.5
1177.5
1177.5
1177.5
1177.5
1177.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10.9
10.9
10.9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1122
110000
9 243072
1 2025
110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3957
349980
110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         110000
1122
1238
1238
1238
1131
1131
1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              110000
110000
110000
1122
                                                                                                                     1. .969
                                                                                                           /*tag=
                                                                                                                                                                                                                                                                                                                                  1362
36602
42296
2732
2732
2733
71138
11023
11023
12152
37115
73882
2376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      88421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            891
                                                                                                            ա
```

ALIGNMENTS

```
40.5
23.4
23.4
23.4
                                                                                                                                                                                                                       3 ADS61947
AAI99682_39
AAL40781
                                                                                                                                                                                                                                                                                                                                                                                                                                         ACF67367 49
ACF653871
ADM27081_07
AAD50753
AAV21209_09
ABN83448
ABA99612
AAL46032
                                                                                                                                                                                                                                                                                                                           3 ADT05737
AAT42063_13
AAS65801
ADA37164

AAT43625

ADP10568

ADD105830

ADA41634

ADD441634

ADA41584

AAS08699

ABZ66810

ABZ73531

ABD08025

ADG91050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAT59268
ACF71774
                                                                                                                                                                                            ABX56041
                                                                                                                                                                                                                                                                                                                                                                                                                AAD50752
                                                                                                                                                                                                                                                                  ADF00853
ACF69143
ACF67367_20
ACF65382
                                                                                                                                                                                                                                                                                                                                                                                      ABN83449
                                                                                                                                                                ACC58253
                                                                                                                                                                                                         ADR31472
                                                                                                                                                                              ADR01210
                                                                                                                                                                                                                                                                                                                                                                        ADT05414
                                                                                                                                                                                                                                                                                                                                                                                                     ADJ98178
                                                                                                                                                                                                                                                                                                                                                                                                                                 ACH98777
                                                       Acc58253 Clorobioc
Ada37164 Human SUV
Aat43625 Chromatin
Adp10568 Reference
Add13830 dbv gene
Add41634 Lipid acy
Adr41584 Lipid acy
Adr41584 Lipid acy
                                                                                                                                                                         Continuation (50 o Continuation (2 of Continuation (2 of Continuation (10 of Rad50753 Escherich (10 o Abn83448 Escherich Aba99612 E. coli the Rad46032 E coli the Rad46032 E coli the Rad46032 E rwinia he Rad50752 Erwinia he Rad50752 Erwinia he Rad50753 Erwinia he Rad50753 Haemophil Rad605737 Haemophil Rad605737 Haemophil Rad605737 Haemophil Continuation (14 of Rad5085801 DNA encod Rad60853 Bacterial Rac69143 Photorhab Continuation (21 of Rad61947 Bacterial Continuation (40 of Rad61947 Bacterial Continuation (40 of Rad61947 Bacterial Continuation (40 of Rad61947 Chorismat Abx56041 M. echino Rad701210 Farmesyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Acf71774 Photorhab
             Ads73531 tcp gene
Abd08026 Pseudomon
 Adg91050 Hepatic
                                          Abz66810 Orthosomy
```

AAF86411 standard; DNA; 969 BP. AAF86411; 22-JUN-2001 (first entry) 4-amino-4-deoxyprephenic acid dehydrogenase coding sequence. Metabolite; benzene; chorismic acid; p-aminophenylpyruvic acid; 4-amino-4-deoxyprephenic acid dehydrogenase; enzyme; papC; ds. Streptomyces venezuelae. Key Location/Qualifiers CDS /*tag= a /product= "4-amino-4-deoxyprephenic acid dehydrogenase" WO200123542-A1. 05-APR-2001. 29-SEP-2000; 2000WO-JP006783. 29-SEP-1999; 99JP-00276314. (MEIJ) MEIJI SEIKA KAISHA LTD.

```
Alignment : Pred. No.: Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best I
Query
DB:
                         á
                                                        밁
                                                                                  Ś
                                                                                                                 밁
                                                                                                                                          S
                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                            ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-089-514-6 (1-322)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  as to produce a secondary metabolite. The secondary metabolite has a benzene ring skeleton free from substitution at the para-position by a controgen-containing functional group, thereby enabling the production of a secondary metabolite with a benzene ring skeleton substituted at the para-position by a nitrogen-containing group. The transformant organism of the present invention has been produced by transferring a gene participating in the biosynthesis pathway from chorismic acid into paninophenylpyruvic acid. The present sequence is the coding sequence for 4-amino-4-deoxyprephenic acid dehydrogenase (papc), from Streptomyces venezuelae. papc participates in the biosynthesis pathway from chorismic acid into p-aminophenylpyruvic acid, and so the papc gene can be used to produce the transformant of the present invention. The transformant can be used to produce metabolites for application in pharmaceuticals,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Yanai K,
Murakami
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Transformant producing secondary metabolite modified with functional group e.g. benzene with nitrogen-containing substituent at para-position, PF1022, with ease at low cost, for application in pharmaceuticals and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scores:
                            141
                                                        361
                                                                                     121
                                                                                                                 301
                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2001-290517/30.
DB; AAB82073.
  421
                                                                                                                                             101
                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                     41
                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                            21
                                                                                                                                                                                                                                                                                                                                                                                                          μ
                                                                                                                                                                                         ValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal
                                                                                                                                                                                                                                                                                                          GlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                       MetSerGlyPheProArgSerValValGlyGlySerGlyAlaValGlyGlyMetPhe
              ArgAspG1yProG1yVa1ThrA1aLeuLeuArgLeuVa1G1uG1yG1yG1yG1yArgPro
                                                                       AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr
                                                                                                                                ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                        GTGGCGCCCGTGACCCGGCTCATGCGGCCGGCCGCGCCGCCCGACACCCCTGTCCGTC
                                                                                                                                                                                                                                                 AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla
                                                                                                                                                                                                                                                                                        GGACGGCCGGACGCCTGCCTGGTGGGCCGACGTCACCGCGCCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                 GCCGGGCTGCTGCGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                   AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            969 BP;
                                                        AACCCGATGTTCGCCCCCGCCGCCGGCATGACCGGCCGACCCGTGGCCGCGTGGTCACC
                                                                                                               CGGACGGGCATGGCCGCGGAGCTCGCGGGCCCACGCGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Page 67-70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Okakura K,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          invention relates to a transformant having been
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            106 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               x AAF86411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8.02e-88
1635.00
100.00%
100.00%
100.00%
                                                                                                                                                                                                                                 CGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Yasuda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-969)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Watanabe M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G; 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ħ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Miyamoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            969
322
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ٣
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Midoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                be used to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                   100
                            160
                                                        420
                                                                                   140
                                                                                                               360
                                                                                                                                            120
                                                                                                                                                                        300
                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                     60
                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                            40
480
                                                                                                                                                                                                                                                                                                                                                                                                        60
```

```
δ
                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
         WPI; 2003-018934/01
P-PSDB; AAO19565.
                                                                                                                                                                                                                                  Substance PF1022; biosynthesis; transgenic; chorismic acid; anthelmintic; phenylalanine; p-aminophenylpyruvic acid; pharmaceutical;
                                                                                                                                                                                                                                                               S venezuelae
                                                                                                                                                                                                                                                                                  28-JAN-2003
                                                                                                                                                                                                                                                                                                     AAL50182;
                                                                                                                                                                                                                                                                                                                       AAL50182 standard;
                                      Yanai K,
                                                                          22-MAR-2001; 2001JP-00082227
                                                                                              22-MAR-2002; 2002WO-JP002782
                                                                                                                                                                                                                          veterinary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                             196
                                                                                                                                                                                                                                                                                                                                                                               321
                                                                                                                                                                                                                                                                                                                                                                                                 901
                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                201
                                                                                                                                                                                                                                                                                                                                                                                                                                                           281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           161
                                                         MEIJI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTACGGCTCACGGCGGAGGAGCACGACGGACGGACGGCCACCCAGGCCCTGACGCAC
                                      Sumida N,
                                                                                                                                                                                                                                                                                                                                                                            AspArg
                                                                                                                                                                                                                                                                                                                                                                                                   CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGAAGGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                              GlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThrAspAspGluGlyGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                        AACCTCGACGGCTCTTCGGGGAACTCCGCCGGCTCATGGGACCCGGAGCTCGCGGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCAGCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGCGACGGCACCGCCCCACCAGGTGCTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGTGCTCCTCCTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis
                                                                                                                                                                                                                        drug;
                                                                                                                                                                                                       venezuelae
                                                                                                                                                                                                                                                               PF1022 substance gene
                                                                                                                                                                                                                                                                                  (first
                                                         SEIKA
                                                                                                                                                                                                                                                                                                                                                                              322
                                                                                                                                                                                                                                                                                                                                                             966
                                                                                                                                                      /*tag= a
/product=
                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                        gene;
                                                                                                                                                                                                                                                                                                                        DNA;
                                                         KAISHA LTD
                                                                                                                                                                                                                                                                                 entry)
                                      Watanabe M,
                                                                                                                                                                                                                                                                                                                        969
                                                                                                                                                        "PF1022 substance"
                                                                                                                                                                                                                                                                                                                        ВP
                                      Moriya
                                                                                                                                                                                                                                                               #3
                                      'n
                                       Murakami
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGTCGGCGACGACCCGGACCGT
                                       H
                                                                                                                                                                                                                                                                                                                                                                                                   960
                                                                                                                                                                                                                                                                                                                                                                                                                    320
                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                220
```

```
Best I
Query
DB:
                                                                                                                                      밁
                                                                                                                                                                á
                                                                                                                                                                                             밁
                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
 ঠ
                           밁
                                                   ঠ
                                                                                  밁
                                                                                                       र्
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                 용
                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-089-514-6 (1-322) x AAL50182 (1-969)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity:
y Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present invention relates to transformants capable of producing PF1022 substance derivatives. These were obtained by transferring a gene participating in the biosynthesis pathway from chorismic acid to participating in the biosynthesis gene) into a phenylalanine-aminophenylpyruvic acid (biosynthesis gene) into a phenylalanine-requiring host derived from an organism producing the PF1022 substance. The transformants are producing PF1022 substance derivatives by fermentation, for use as pharmaceuticals or veterinary drugs. The present sequence is a substance PF1022 coding sequence from Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Novel biosynthesis gene-transferred transformants for producing PF1022 substance derivatives by fermentation, as pharmaceuticals or veterinary drugs with anthelmintic activity.
                            601
                                                     201
                                                                                  541
                                                                                                            181
                                                                                                                                       481
                                                                                                                                                                   161
                                                                                                                                                                                              421
                                                                                                                                                                                                                        141
                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                    101
                                                                                                                                                                                                                                                                                                                                                                 241
  221
                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       969
                                                                                                                                                                                                                                                                                                                          ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                              ValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro
                                           AlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGly
                                                                                                   AlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeu
                                                                                                                                                          ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis
                                                                                                                                                                                                                    ArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgPro
                                                                                                                                                                                                                                                                     AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetSerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPhe
GlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg
                                                                                                                                         GTACGGCTCACGGCGGAGGAGC
                                                                                                                                                                                                                                                     AACCCGATGTTCGCCCCCGCCGGCCGGCATGACCGGCCGACCCGTGGCCGTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                       GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCGGGGCCCGAACTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGGCGACGGCACCGCCCACCAGGTGCTCGCCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                                                                                                                                                                                                                                 GTGGCGCCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₿P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8.02e-88
1635.00
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۸,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        969
0
0
222
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0 Other;
                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40
                           660
                                                                                  600
                                                                                                            200
                                                                                                                                       540
                                                                                                                                                                                             480
                                                                                                                                                                                                                        160
                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                             140
                                                                                                                                                                                                                                                                                                         360
                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                                                                                                                                 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
```

```
RESULT 3
ABZ69799
ID ABZ6
XX ABZ6
XX ABZ6
XX ABZ6
XX DHER
XX DHER
XX DHER
XX DHER
XX DHER
XX DHER
XX DHER
XX DHER
XX HOLD
DE SYNT
XX WO20
XX SYNT
XX WO20
XX HOLD
PR 19-A
PR 19-A
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 06-F
PR 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-tRNA with at least one unnatural amino acid in the translation system and the O-tRNA recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the Aspl?TAG mutant of chloramphenical acetyltransferase (CAT), the Tyr163TAG mutant of mouse dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse dihydrofolate reductase (DHFR), The translation system is a cell and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase; ds; plasmid; biosynthesis; p-aminophenylalanine; pAF; chorismate.
                                                                                                                                                                                                                                                                                                                                                                                                           Composition useful for producing place translation system comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Meggers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Schultz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19-APR-2001; 2001US-0285030P.
06-FEB-2002; 2002US-0355514P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ABZ69799
                                                                                                                                                                                                                                                                                                                                 Example 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31-OCT-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DHFR; translation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Plasmid papABC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABZ69799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (SCRI ) SCRIPPS RES INST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EĽ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Asparg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThrAspAspGluGlyGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGGTCGGCGACGACCCCGGACCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGGACCACTGCCAGGAGCTGTTCCGCACCTCCACCGCACCGACGAAGGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGAGCTCGCGGCGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGACGCCCCCGGGCGGCCGACGCCCCCGGCCATCCCGGGGGATGCGACGGCGGG
                                                                                                                                                                                                                                                                                                                                                                                    tRNA synthetase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wang L, 1, Mehl RA,
                                                                                                                                                                                                                                                                                                                              Page 127-128; 188pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Anderson JC,
, Pastrnak M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3305
                                                                                                                                                                                                                                                                                                                                                                                                           protein comprising unnatural amino g orthogonal tRNA and orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chin JWK, L. Santoro SW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Liu DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Magliery 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                            acid,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          720
```

```
Best I
Query
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
Score:
Percent Similarity:
                                                              Ş
 뭉
                  Ś
                                         В
                                                                                    밁
                                                                                                     Ş
                                                                                                                                 밁
                                                                                                                                                   Ś
                                                                                                                                                                            밁
                                                                                                                                                                                             Ś
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                         맑
                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         និនិនិនិនិនិ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-089-514-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           unnatural amino acid is biosynthesised by the cell. The present sequence represents a plasmid containing the individual genes papABC that encode the enzymes used to carry out the conversion of chorismate to the unnatural amino acid p-aminophenylalanine (pAF)
                                                                                                                                                                             2547
                                                                                                                                                                                                                         2487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2067
                                                                                      2667
                                                                                                                                 2607
                                                                                                                                                                                                                                                                  2427
                                                                                                                                                                                                                                                                                                              2367
                                                                                                                                                                                                                                                                                                                                                         2307
                                                                                                                                                                                                                                                                                                                                                                                                     2247
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2007
                                                                                                                                                                                                                                                                                        141
                                                                                                                                                                                                                                                                                                                                                                               101
                                                               241
                                                                                                           221
                                                                                                                                                       201
                                                                                                                                                                                                  181
                                                                                                                                                                                                                                             161
                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3305
                                        ArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                  ValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro
                                                                                                    GlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg
                                                                                                                                           AlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGly
                                                                                                                                                                                                                                      ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis
                                                                                                                                                                                                                                                                                                                         AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr
                                                                                                                                                                                                                                                                                                                                                                      ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCCTCCGGGACGTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGAGCGGCTTCCCCCGGAGCGTCGTCGTCGGCGGCAGCGGAGCGGTGGGCGCATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetSerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPhe
GCCGAGGACCCGGACGCCGACGACCCGACCGACAACCCCGGCCATCCCGG
                                                                                     CGGACGGGCATGGCCGCGGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                     GTGGCGCCCGTGACCCGGCTCATGCGACCGGGCGCGCTGCTCGCCGACACCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGGACGGGCCGCCCCCCTGCTGCGGCTCGAGGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (1-322) x
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BP; 445
             AspProAspArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.49e-84
1588.00
96.65%
96.04%
97.13%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABZ69799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (1-3305)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1121 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ζ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Other;
                                                                                                                                                                                                                                                                  2486
                                                                                                                                                                                                                                                                                                             2426
                                                                                                                                                                                                                                                                                                                                                         2366
                                                                                                                                                                                                                                                                                                                                                                                                     2306
                                                                                    2726
                                                                                                                                 2666
                                                                                                                                                                            2606
                                                                                                                                                                                                                       2546
                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                       160
                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                               2246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2066
                                                               256
                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                          trank with at least one unnatural amino acid in the translation system and the O-tRNA recognises at least one selector codon. A composition of the invention is useful for producing at least one protein comprising at least one unnatural amino acid. The protein is the Aspl2TAG mutant of chloramphenicol acetyltransferase (CAT), the Tyr163TAG mutant of mouse dihydrofolate reductase (DHFR), or a Tyr163TAG mutant of mouse dihydrofolate reductase comprising CHOOH His6tag. The unnatural amino acid is provided exogenously. The translation system is a cell and the unnatural amino acid is biosynthesised by the cell. The present sequence represents a plasmid for use in the biosynthesis of p-aminophenylalanine (pAF) in vivo
                                                                                                                                                                                                                                                                                                                               The invention relates to a novel composition comprising a translation system comprising an orthogonal tRNA (O-tRNA) and an orthogonal aminoacyl tRNA synthetase (O-RS), where the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS preferentially aminoacylates the O-RS p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DHFR; translation; orthogonal tRNA; O-tRNA; O-RS; CAT; TyrRS; orthogonal aminoacyl tRNA synthetase; unnatural amino acid; chloramphenicol acetyltransferase; dihydrofolate reductase; ds; biosynthesis; p-aminophenylalanine; pAF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Composition useful for producing plans translation system comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19-APR-2001; 2001US-0285030P 06-FEB-2002; 2002US-0355514P
                                                                                                                                                                                                                                                                                                                                                                                                                                         Example 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2003-120430/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Schultz
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19-APR-2002; 2002WO-US012465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200285923-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Plasmid plasc-papabc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            08-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABZ69798 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aminoacyl tRNA synthetase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SCRI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SCRIPPS RES
  12391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GACGACGAAGGCGAGAAGGACCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspAspGluGlyGluLysAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGAGCTCGCGGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProGluLeuAlaAlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Page 124-127; 188pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Wang L, A, Mehl RA,
₿₽;
  2830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Anderson JC,
, Pastrnak M,
  Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12391
  3588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽₽
Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein comprising unnatural amino acid, orthogonal tRNA and orthogonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chin JWK,
Santoro S
  3346
  G
  2627
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Liu
  Ŧ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DR,
  0
U;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Magliery
Z;
  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       plasmid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        314
```

Percent Similarity: Best Local Similarity:

5.16e-84 1588.00 96.65% 96.04%

> Length: Matches: Conservative:

Pred.

No.

Alignment

```
र्
                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query
BB:
                                                                                                  8
                                                                                                                            Ś
                                                                                                                                                         밁
                                                                                                                                                                                 ई
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
밁
                       ঠ
                                                   밁
                                                                         र्
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-6 (1-322)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match:
                                                                                                                                                                                                                                                                 3021
                                                                                                       3201
                                                                                                                                                         3141
                                                                                                                                                                                                              3081
                                                                                                                                                                                                                                                                                                                      2961
                                                                                                                                                                                                                                                                                                                                                                           2901
                                                                                                                                                                                                                                                                                                                                                                                                                              2841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2781
                                                   3261
                                                                                                                                                                                                                                                                                                                                              201
                                                                                                                                                                                    257
                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                          221
                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                       161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       μ
                                                                                                                                                        GCCGAGGACCCGGACCGCCGACGACCGCACCACCACCCGGCCATCCCGGG
                                                                                                                                                                                                                                                                                        GlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg
                                                                                                                                                                                                                                                                                                                                    AlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGCGCCGTGACCCGGCTCATGCGACCGGGCGCTGCTCGCCGACACCCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACGGCCGGACGCCTGCCTGGTGGGCGACCTCACCGCGCCCGAGCCCGAGCTCGCGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetSerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPhe
            AspAspGluGlyGluLysAspArg
                                                               ProGluLeuAlaAlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThr
                                                                                                      GGATGCGACGGCGCCGGGAACCTCGACGGCGTCTTCGAGGAACTCCGCCGGCTCATGGGA
                                                                                                                     GlyCysAspGlyAlaGlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGly
                                                                                                                                                                                                           CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGATCGGCGACGACCGGACCGC
                                                                                                                                                                                                                             ArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAsp--------
                                                                                                                                                                                                                                                                                                                                                                                       AlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                               ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGACGGCATGGCCGCGAGCTCGCGGCCCACGCCCCCGGCGTCCAGCACGTGGGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCCTCCGGGACGCGGACCTCCTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla
                                                                                                                                                                                 -----AspProAspArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGly
                                                                                                                                                                                                                                                                 GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGGCGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                         GCCGTGATCCTCCTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGGGACGGGCCGGCCTCCTGCTGCGGCTCGTCGAGGGCGGCGGCGGCAGGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGAGTGGCTTCCCCCGGAGCGTCGTCGGCGGCAGCGGAGCGGTGGGCGGCATGTTC
                                                   CCGGAGCTCGCGGCGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 в 9
7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-12391)
                          322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ٦ 6
                                                   3320
                                                                                                     3260
                                                                                                                                                         3200
                                                                                                                                                                                                                                                                                                                     3020
                                                                                                                                                                                                                                                                                                                                                                        2960
                                                                                                                                                                                                                                                                                                                                                                                                                             2900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2660
                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                               220
                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40
                                                                                                                                                                                                                                       256
                                                                                                                                                                                                                                                                 3080
                                                                                                                                                                                                                                                                                                                                                                                                  200
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                            The papA and papM genes of S.pristinaespiralis are involved in the biosynthesis of 4-dimethylamino-L-phenylalamine (DMPAPA), a precursor for pristinamycin IA. The region between these two genes was sequenced and two open reading frames were identified. The first (papC) was on the complementary strand and decodes to an amino acid sequence with homology to the region of E.coli TyrA which has been implicated in aromatisation reactions. The PapC gene product is likely to be involved in a similar aromatisation of 4-deoxy 4-amino prephenate to give 4-amino frame (papB) could be decoded to give a product with homology to the region of TyrA which has chorismate mutase activity. The PapB gene product is likely to catalyse the isomerisation of 4-deoxy 4-amino chorismate to 4-deoxy 4-aminoprephenate acid. Disruption of the papB and papC genes can be used to produce strains of S.pristinaespiralis which are unable to produce the antibiotic pristinamycin I but which may be able to produce new, modified forms of it
                                                                                                                                                                                                                                                                                                                                                                                       New streptogramin B derivs. useful as antibiotics - produced by new mutants of Streptomyces having altered genes for streptogramin B biosynthesis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Streptogramin B; antibiotic; biosynthesis; pristinamycin; virginiamycin; DMPAPA precursor; 4-dimethylamino-L-phenylalanine; papA; papM; papB; papC; isomerisation; aromatisation; N-methyltransferase; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1996-097631/10.
P-PSDB; AAW11582.
                                                                                                      Sequence 888
                                                                                                                                                                                                                                                                                                                                                              Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Barriere
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Blanc V,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-JUL-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AATS9269 standard; cDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25-JAN-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO9601901-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mat_peptide
                                                                  No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (RHON ) RHONE
                                                                                                                                                                                                                                                                                                                                                              18;
                                                                                                                                                                                                                                                                                                                                                              Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Thibaut D,
                                                                                                         BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pristinaespiralis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Debussche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         POULENC RORER SA
                                                                                                                                                                                                                                                                                                                                                              105-106; 146pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94FR-00008478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95WO-FR000889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= a
/product= "PapC"
  1.41e-30
661.50
60.38%
49.52%
40.46%
                                                                                                       Ņ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bamas-Jacques
le L, Famechon
                                                                                                         254
                                                                                                       Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ВP
                                                                                                         428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          papc
            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                         G; 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  γZ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Blanche F, Crouzet J; Paris J, Dutruc-Rosset
                                                                                                       H
                                                                                                         0
                                                                                                       Ġ,
888
155
34
101
23
                                                                                                         0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                         for
```

á

SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla

21

US-10-089-514-6 (1-322)

x AAT59269 (1-888)

Ş

뭐

```
RESULT 6
AAT59268/c
ID AAT592
XX
AC AAT592
XX
AC AAT592
XX
DT 02-APR
XX
DE Strept
XX
           Streptomyces
                                  02-APR-1997
                                                                               AAT59268
                                                                                                                                                                                                                                                                                                               670
                                                                                                                                                                                                                                                                                                                                                           610
                                                                                                                                                                                                                                                                                                                                                                                                        550
                                                                                                                                                                                                                                                                                                                                                                                                                                                    490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        310
                                                                                                                            850
                                                                                                                                                                                              280
                                                                                                                                                                                                                      778
                                                                                                                                                                                                                                           260
                                                                                                                                                                                                                                                                  730
                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                    220
                                                                                                                                                                                                                                                                                                                                                                                200
                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ű
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22
                                                                                                                                                                                                                                                                                                                           GlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                     HisAlaValLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                               standard;
                                                                                                                           CTGGAACGGCTGTGCGCGCGCGGATGTTCACCGCCCTGCAC 888
                                                                                                                                               GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis 312
                                                                                                                                                                                     GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                              GGCGGGACGCCGAGGTGTATTTCGACATCCAGGCCCAACCCCGCGCGCCGCCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                               LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGTGGAGATGCCGGCGCGCGCGCACGACGACCAGCTGACCGCCGCGCAGCAGGCCGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCACCGACGGGCCCGGTGTGCGGGGCCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCAAGAGCCGGATCGCCGGGCGGCTGCGTGAGGCGCCGCGGGCTGCAGGCGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGTGGAGGTGCTGGCGGGGGGTGATGCGGCCCCGGTGCGCGCTCCCCGGACACCTTGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCGGACGGGTGCGGGTGGTGATGTGCGGCGGCCGGGGCCGGACGCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                          ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla
                                                                                                                                                                                                                                                                  CGGCAGGCGTGGGCCGGCCTG-----
                                                                                                                                                                                                                                                                                      ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                                                                                                           CTGCGGGACAGTGCCCGCCGCCGCATCTGGCGATGCTGGCGCCGGCTGCCCGGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                      CATIGOCOCOGTOCTTOGGCCTTOGGCCTTOGGTGAGCTTGTCGGTGGACGTGGGGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGAACCCGATGTTCGCCCCCCCCCCGGGGGGGTCTTCAGGGGCGGCGGTGGCGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGGGGCGACGAGGAGACGTTCGCC--
           pristinaespiralis
                                  (first entry)
                                                                                                                                                                          ---GCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCGCGCAG
                                                                               CDNA; 2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ВÞ
           papA and
           papM
                                                                                                                                                                                                                                                                  -GTGCGGCTGGGGCAGGCCGTCGAG
           intergenic
                                                                                                                                                                          849
                                                                                                                                                                                                                                           279
                                                                                                                                                                                                                                                                                       259
                                                                                                                                                                                                                                                                                                                                                                                219
                                                                                                                                                                                                                                                                                                                                                                                                                             199
                                                                                                                                                                                                                                                                                                                                                                                                                                                   549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      72
                                                                                                                                                                                                                    801
                                                                                                                                                                                                                                                                  777
                                                                                                                                                                                                                                                                                                              729
                                                                                                                                                                                                                                                                                                                                                                                                       609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99
```

á

밁 á 밁 Ş

밁 Ś 밁 Ś В Ş 밁 S 밁 á 밁 Ś 밁

```
Streptogramin B; antibiotic; biosynthesis; pristinamycin; virginiamycin; DMPAPA precursor; 4-dimethylamino-L-phenylalanine; papA; papM; papB; papC; isomerisation; aromatisation; N-methyltransferase; ds.
Streptomyces
pristinaespiralis.
```

```
CDS
                                                                                                       CDS
                                                                                                                                                   CDS
                                                                                                                                                          /*tag= a
/product= "PapA"
/note= "C-terminal coding region only, i.e. a partial
open reading frame"...
/note= "N-terminal coding region only,
open reading frame"
                                                                                                                                                 complement (949. .1836)
                           /*tag= d
/product= "PapM"
                                                                       /*tag= c
/product= "PapB"
                                                                                                                                                                                                                                      location/Qualifiers
                                                         259. .2888
                                                                                                   product= "PapC"
873. .2262
                                                                                                                                   Ö
               i.e. a
             partial
```

WO9601901-A1

25-JAN-1996

04-JUL-1995; 95WO-FR000889

08-JUL-1994; 94FR-00008478.

(RHON) RHONE POULENC RORER SA

Blanc V, Barriere J, Thibaut D, E J, Debussche Bamas-Jacques e L, Famechon PZ Blanche | Paris J, F, Crouzet J;
, Dutruc-Rosset ü

1996-097631/10.)B; AAW11582, AAW11583.

New streptogramin B derivs. useful as antibiotics - produced by new mutants of Streptomyces having altered genes for streptogramin B

Example 1; Page 102-104; 146pp; French.

The papA and papM genes of S.pristinaespiralis are involved in the biosynthesis of 4-dimethylamino-L-phenylalamine (DMPAPA), a precursor for pristinamycin IA. The region between these two genes was sequenced and two open reading frames were identified. The first (papC) was on the complementary strand and decodes to an amino acid sequence with homology to the region of E.coli TyrA which has been implicated in aromatisation reactions. The PapC gene product is likely to be involved in a similar aromatisation of 4-deoxy 4-amino prephenate to give 4-amino prephenate (papB) could be decoded to give a product with homology to the region of 11kely to catalyse the isomerisation of 4-deoxy 4-amino chorismate to 4-deoxy 4-aminoprephenate. Disruption of the papB gene product is deoxy 4-aminoprephenate. Disruption of the papB and papC genes can be used to produce strains of S.pristinaespiralis which are unable to produce the antibiotic pristinamycin I but which may be able to produce new, modified forms of it

Sequence 2888 BP; 390 A; 1319 Ç 897 <u>ი</u> 282 Ŧ, 0 0 Other 문 Ş В Ş 밁 á В Ş 밁 Ś 밁

```
Query Match:
DB:
               Percent Similarity:
Best Local Similarity:
                                             Alignment
                                      Хо
:
              4.27e-30
661.50
60.38%
49.52%
40.46%
              Matches:
Conservative:
Mismatches:
Indels:
Gaps:
2888
155
34
101
23
```

```
ACF71774
ID ACF
XX
AC ACF
XX
DT 20-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                           RESULT
                                                                                                                         밁
                                                                                                                                                     ঠ
                                                                                                                                                                                     밁
                                                                                                                                                                                                              S
                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                        망
                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-6 (1-322) x AAT59268 (1-2888)
 20-NOV-2003
                                                            ACF71774
                                                                                                                                                                                                                                                 1059
                                                                                                                                                                                                                                                                                                             1107
                                                                                                                                                                                                                                                                                                                                                                        1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1764
                                                                                                                                                                                                                                                                                                                                                                                                                                     1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1587
                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                                                                                                                                                                                                                                                                                                        ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCAAGAGCCGGATCGCCGGGCGGCTGCGTGAGGCGGCGCCGGGGGCTGCAGGCGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGTGGAGGTGCTGGCGGGGGGTGATGCGGCCCGGTGCCGCGGACACCCTTGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                        CTGGAACGGCTGTGCGCGCGGATGTTCACCGCCCTGCAC
                                                                                                                                                     GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis 312
                                                                                                                                                                                                                GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CATGCCGCGGTGCTTCGGGCCTGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGTGGAGATGCCGGCGCGCGCGCACGACGACGACCTGACCGCCGCGCAGCAGGCCGCCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCACCGACGGGCCCGGTGTGCGGGCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGCGCTGGCGGCGGACGTGGTGGTGCTGGCGGTGCCGGAGCCGGTGGCGTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCGGCGGACGGGTGGTGGTGGCCGGTGATGTGCGGCGGCCGGGGCCGGAGGCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCGGTGTTCGGGCGTTGTGTGGTGGTGGGCGGGGGCCGGTGCGGTGGGCCGCATGTTCAGC
                                                            standard;
                                                                                                                                                                                                                                                 AGGGGCGACGAGGAGACGTTCGCC-
                                                                                                                                                                                                                                                                             ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla
                                                                                                                                                                                                                                                                                                             CGGCAGGCGCTGGGCCGGCCTG-----GTGCGGCTGGGGCAGGCCGTCGAG
                                                                                                                                                                                                                                                                                                                                          ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGCGGGACAGTGCCCCGCCGCCGCATCTGGCGATGCTGGCCTGGCCCGGATCGCC
 (first entry)
                                                                                                                                                                                     ----GCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCGCGGAG
                                                            DNA;
                                                            888
                                                            ВР
                                                                                                                         949
                                                                                                                                                                                                                                                                                                                                                                                                                                     1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1588
                                                                                                                                                                                                                                                                                                             1060
                                                                                                                                                                                                                                                                                                                                                                          1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1468
```

```
detection; food; gene expression; plant; animal; microorganism; antibiotic; biopesticide; virulence factor; disease model; plague whooping cough; gene; ds.
                                                                                                       Antibacterial;
                                                                                                                                                                   Photorhabdus luminescens nucleotide sequence
                                                                                                       fungicide;
                                                                            insecticide; polymorphism; genetic analysis;
ression; plant; animal; microorganism; toxin;
                                                                                                                                                                      #10241
                                           plague;
```

Photorhabdus luminescens

WO200294867-A2

28-NOV-2002

07-FEB-2002; 2002WO-IB003040

07-FEB-2001; 2001FR-00001659

(INSP INST PASTEUR.
CNRS CENT NAT RECH

Duchaud 'n Taourit S, Glaser P, SCI Frangeul L, Kunst F,

Danchin

P

Buchrieser

useful e sequence of Photorhabdus luminescens and ġ as therapeutic antimicrobials and and encoded polypeptides, agricultural pesticides.

Claim 2; SEQ ID NO 10241; 1205pp; French

The invention relates to the isolation of genes and their encoded CC proteins from Photorhabdus luminescens. The isolated sequences are consures of probes and primers for detecting the genome of P. luminescens CC and related species; to study polymorphisms; for gene analysis and for CC detection/amplification of the genes. Antibodies (Ab) raised against the CC polypeptides encoded by the genes are used for detection/identification of P. luminescens, e.g. in foods. The genes, proteins, Ab and cells that CC carry a gene-containing vector are used to select compounds that CC modulate, regulate, induce or inhibit expression of the genes in plants, animals or microorganisms other than P. luminescens and are able to alter response or sensitivity to toxins and antiblotics produced by P. CC luminescens. Cells transformed to express the genes are useful for CC recombinant production of the proteins, particularly toxins and genes, proteins, vectors containing the genes and Ab are also useful CC antibacterials useful as insecticides, bactericides and fungicides. The CC genes, proteins, vectors containing the genes and Ab are also useful CC are sensitive to P. luminescens-encoded toxins or antibiotics) and as biopesticides. Other uses of the genes and the proteins are as virulence CC factors and for identifying targets of human diseases for which P. CC luminescens is a model (particularly plague and whooping cough). This cC sequence represents one of the isolated P. luminescens genes

Sequence 888 BP; 207 A; 194 ü 229 G; 258 Ŧ, 0 U; 0 Other;

맑 Š. Percent Similarity:
Best Local Similarity:
Query Match: US-10-089-514-6 (1-322) 19 œ 3.92e-14 382.00 47.94% 32.06% 23.36% x ACF71774 (1-888) Length:
Matches:
Conservative:
Mismatches:
Indels: Gaps: 888 101 50 126 38

```
밁
                               Ş
79
                                       28
                                     GlySerArgThrLeuValValAspLeuValProProProGlyArg---
                                                                                             ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
GGTCATATTGTATACAGTGTTGACAAACGAACGCAGGGAGTGCGTTCTCATTACTATCAT
                                                                            GTCATCCTTGGTGGGCAAGGCGCTATTGGTTCTTTATTAGAGCGCCTTTTTTACTCAATAT
138
                                                                              78
                                                                                                                      27
                                       42
```

```
RESULT 8
ACE67367 49
Continuation (50 of 57) c
Wp Sequence split into 57
Wp Sequence split into 57
Wp ACE67367 00
Wp ACE67367 01
Wp ACE67367 03
Wp ACE67367 03
Wp ACE67367 03
Wp ACE67367 06
Wp ACE67367 06
Wp ACE67367 07
Wp ACE67367 07
Wp ACE67367 09
Wp ACE67367 09
Wp ACE67367 11
                                                                                                                                                           밁
                                                                                                                                                                       5
                                                                                                                                                                                           유
                                                                                                                                                                                                                        뮹
                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                            Вb
                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                             음 성
                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                676
                                                                                                                                                                                                                                                                                                                                  616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         376
                                                                                                                                                           838
                                                                                                                                                                          297
                                                                                                                                                                                            793
                                                                                                                                                                                                            281
                                                                                                                                                                                                                              792
                                                                                                                                                                                                                                              261
                                                                                                                                                                                                                                                                                                                 223
                                                                                                                                                                                                                                                                                                                                                   203
                                                                                                                                                                                                                                                                                                                                                                     556
                                                                                                                                                                                                                                                                                                                                                                                    183
                                                                                                                                                                                                                                                                                                                                                                                                      496
                                                                                                                                                                                                                                                                                                                                                                                                                       163
                                                                                                                                                                                                                                                                                                                                                                                                                                        436
                                                                                                                                                                                                                                                                                                                                                                                                                                                        143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43
                                                                                                                                                                                                                                                                                               LeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAla
:::||| |||||||| ||||||:::
                                                                                                                                                                                                                                                                                                                                                                                                              LeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaVal
                                                                                                                                                         CTTGATATCAGTGCTGCTGATTGCCAGCATATTTTTTCAACGCTT
                                                                                                                                                                      LeuAlaAlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeu
                                                                                                                                                                                                          AsnLeuAspGlyValPheGly------GluLeuArgArgLeuMetGlyProGlu
                                                                                                                                                                                                                                                             TTGCTGCATGCCATACAACAGTTAGATTCGATAGTACAGGCTGGCGATCAAACTGAA---
                                                                                                                                                                                                                                                                          LeuAlaGluAlaLeuArgSerPheAlaAlaLeuVal-----GlyAspAspProAspArg
                                                                                                                                                                                                                                                                                                                                                                   CATGTTAGTGAACATTGGATTGAGCGGGTATTGATGCAGGCTGATATGCGTATCAGTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTTTTATTCTGCATTAAGAGCTGCCGCCCCCGGGCAGCCTTCATTGGTGTTAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCTCATTACTGTCAGATT---GATATCTTAAACCCGGCTGCTGATGTTGGAGCGGTTTTG
                                                                                                                                                                                                                                             AlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                     ATGACGCCGGAGGAACACGATCAGGTTATGGCGCTTTGTCAGGCTTTGCCCCCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgProValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGTTCTCGCCATCTTTGCCGGAGCAAAAAAGGCCAGTTGCAGTCATTCTCGATAACTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGGTGTTATCTGCTATTGGTGATGATGTACAGATCGTGTCAACCTGTTCAGTTCAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeu
                                                                                                               of ACF67367
57 fragments
100001
200001
300001
400001
500001
500001
700001
8000001
1000001
                                                                                                                                                                                           ----TTTGGCAATAACCTCAGAGATATTGCGCAACAACTGGGGGAACAG
                                                                                                      Begin
End
110000
210000
310000
410000
510000
610000
710000
910000
1110000
1110000
                                                                                                                        from
                                                                                                               LOCUS
                                                                                                                        base
                                                                                                               ase 4900001 (Photorhabdus luminescens ACF67367 Accession Acf67367
                                                                                                                                                         882
                                                                                                                                                                          311
                                                                                                                                                                                                                                                                                                                                                                                                                      182
                                                                                                                                                                                                                                                                                                                                                                                                                                       495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        435
                                                                                                                                                                                            837
                                                                                                                                                                                                            296
                                                                                                                                                                                                                             792
                                                                                                                                                                                                                                             280
                                                                                                                                                                                                                                                              792
                                                                                                                                                                                                                                                                              260
                                                                                                                                                                                                                                                                                               735
                                                                                                                                                                                                                                                                                                                                  675
                                                                                                                                                                                                                                                                                                                                                 222
                                                                                                                                                                                                                                                                                                                                                                    615
                                                                                                                                                                                                                                                                                                                                                                                    202
                                                                                                                                                                                                                                                                                                                                                                                                     555
                                                                                                                                                                                                                                                                                                                                                                                                                                                        162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                                        nucleot
                                                                                                                                                                                                                    Alignment
Pred. No.:
                                                                                                                                                                          Query
DB:
                            δ
                                                  밁
                                                               S
                                                                                                  5
                                                                                                                                    δ
                 밁
                                                                                    밁
                                                                                                                       밁
                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                               US-10-089-514-6 (1-322) x ACF67367_49 (1-110000)
                                                                                                                                                                                  Match:
                                                                                                                                                                                                                     No.:
                                                                                                                                                                                                                                                                                                                                      ACT67367 12
ACT67367 13
ACT67367 14
ACT67367 17
ACT67367 17
ACT67367 17
ACT67367 17
ACT67367 27
ACT67367 37
ACT67367 41
ACT67367 41
                                                                                                                                                                                                                                          ACF67367-46
ACF67367-47
ACF67367-49
ACF67367-51
ACF67367-51
ACF67367-52
ACF67367-53
ACF67367-53
ACF67367-54
ACF67367-55
ACF67367-55
                  76640 AGTGGGGCAAAGGCGGTCGTCTTTGCCTTACCGGAAGCCGTCGCCATACAAGCGTTGCCT
                                                                                     76523
                                                                                                                                                                                                                            Scores:
                                  63
                                                                    43
                                                                                                      28
                                                                                                                                  8 ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                     GlySerArgThrLeuValValAspLeuValProProProGlyArg---------
                           ArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAla
                                                                                                                      ProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr 102
                                                   TCTCATTACTGTCAGATT---GATATCTTAAACCCGGCTGCTGATGTTGGAGCGGTTTTG
                                                                   ProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeu
                                                                                    GGTCATATTGTATACAGTGTTGACAAACGAACGCAGGGAGTGCGTTCTCATTACTATCAT
                                                                                                                                                                         3.67e-12
382.00
47.94%
32.06%
23.36%
                                                                                                                                                                                                                                            3410000
3510000
3610000
3710000
3710000
4010000
42110000
42110000
42110000
42110000
4310000
4310000
4510000
4610000
5010000
5010000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
5110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                       2910000
3010000
3110000
3210000
3310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2610000
2710000
2810000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2210000
2310000
2410000
2510000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1310000
1410000
1510000
1610000
1710000
1810000
                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                       110000
101
50
126
38
                                   82
                                                                    62
                                                                                                      42
                                                                                                                                        27
```

```
RESULT 9
ACF65387 1
Continuation
WP Sequence spragment
WP ACF6531
WP ACF6531
WP ACF6531
WP ACF6531
WP ACF6531
WP ACF6531
WP ACF6531
                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     र्
            밁
                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      र्ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                       US-10-089-514-6 (1-322)
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence split into 7
                                                                                                                                                                                                                               No.:
                                                                                                                                                                                                                                                                               Pragment Name
ACP65387 0
ACP65387 1
ACP65387 2
ACP65387 3
ACP65387 3
ACP65387 5
ACP65387 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77237
            15977
                                                                                                                                                                                                                                                  Scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       163
                                                œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATGTTAGTGAACATTGGATTGAGCGGGTATTGATGCAGGCTGATATGCGTATCAGTAGG
        ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuAlaAlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGCTGCATGCCATACAACAGTTAGATTCGATAGTACAGGCTGGCGATCAAACTGAA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATAGAAGTGTACTGGGACGTTCAATATGAAAATCCGATGGCTGCCGAACCGCGTCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTGCGCCACCGCCCATGCGTACCATGCTGGCGTTATTATCAAGGATCTTACGCAATCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGACGCCGGAGGACACGATCAGGTTATGGCGCTTTGTCAGGCTTTGCCCCCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTTTTATTCTGCATTAAGAGCTGCCGCCCCCGGGCAGCCTTTCATTGGTGTTAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTGATATCAGTGCTGCTGATTGCCAGCATATTTTTTCAACGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnLeuAspGlyValPheGly------GluLeuArgArgLeuMetGlyProGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuAlaGluAlaLeuArgSerPheAlaAlaLeuVal-----GlyAspAspProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATACTGATTTTTGGCTTTGGTGTTGGCGAAAAGTCCGTTAGATATTCGTACCTTGGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArgProValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnPro
                                                                                                                           3.67e-12
382.00
47.94%
32.06%
23.36%
                                                                                   x ACF65387_1
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACF65387 from base 100001 fragments LOCUS ACF65387
                                                                                                                                                                                                                                                                                         100001
200001
300001
400001
500001
                                                                                                                                                                                                                                                                                                                                                                                                                                 Begin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTGGCAATAACCTCAGAGATATTGCGCAACAACTGGGGGAACAG
                                                                                                                                                                                                                                                                                                          110000
210000
310000
410000
510000
                                                                                       (1-110000)
                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Photorhabdus luminescens nucleotide Accession Acf65387
                                                                                                                       110000
101
50
126
38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       76819
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122
      RESULT 10
ADM27081 07
CONTINUATION
WP Sequence sg
WP Fragmer
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
WP ADM2708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
Tontinuation (8 of 17) continuation (18 of 17) continuation (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28
                                                                                                                                                                                                                                                                  CTTGATATCAGTGCTGCTGATTGCCAGCATATTTTTTCAACGCTT
                                                                                                                                                                                                                                                                                              LeuAlaAlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIGCIGCATGCCATACAACAGTTAGATTCGATAGTACAGGCTGGCGATCAAACTGAA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuAlaGluAlaLeuArgSerPheAlaAlaLeuVal------GlyAspAspProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATAGAAGTGTACTGGGACGTTCAATATGAAAATCCGATGGCTGCCGAACCGCGTCAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATACTGATTTTTGGCTTGGTTTGGCGAAAAGTCCGTTAGATATTCGTACCTTGGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGACGCCGGAGGAACACGATCAGGTTATGGCGCTTTGTCAGGCTTTGCCCCCATGCCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaVal 182
:::||| ||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CATGTTAGTGAACATTGGATTGAGCGGGTATTGATGCAGGCTGATATGCGTATCAGTAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTTTTTATTCTGCATTAAGAGCTGCCGCCCCCCGGGCAGCCTTTCATTGGTGTTAACCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTCATTACTGTCAGATT---GATATCTTAAACCCGGCTGCTGATGTTGGAGCGGTTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArgProValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGTTCTCGCCATCTTTGCCGGAGCAAAAAAGGCCCAGTTGCAGTCATTCTCGATAACTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGGGTGTTATCTGCTATTGGTGATGATGTACAGATCGTGTCAACCTGTTCAGTTCAGGCC 16273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGTCATATTGTATACAGTGTTGACAAACGAACGCAGGGAGTGCGTTCTCATTACTATCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlySerArgThrLeuValValAspLeuValProProFroGlyArg-----
                                                                                                                                                                                                                                                                                                                                                                                         AsnLeuAspGlyValPheGly-----GluLeuArgArgLeuMetGlyProGlu
                                                                                                                                                                    of
17
                                                                                                                                         f ADM27081 from )
7 fragments LOCI
Begin End
        100001
200001
300001
400001
500001
                                                                                                                                                                                                                                                                                                                                            TTTGGCAATAACCTCÁGAGATATTGCGCAACAACTGGGGGAACAG
      110000
210000
310000
410000
510000
610000
                                                                                                                                                                    Locus
                                                                                                                                                                  base 700001
CUS ADM27081
                                                                                                                                                                  (Hyperthermophile Methanopyrus Accession Adm27081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16153
                                                                                                                                                                                                                                                                                                                                                      16795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       42
```

kand

```
Ś
밁
                       Ş
                                                     밁
                                                                                                              밁
                                                                                                                                      ঠ
                                                                                                                                                                       밁
                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-6 (1-322) x ADM27081_07 (1-110000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADM27081 10

ADM27081 11

ADM27081 11

ADM27081 12

ADM27081 13

ADM27081 13

ADM27081 14

ADM27081 14

ADM27081 15

ADM27081 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADM27081
ADM27081
ADM27081
                                                                                                                                                                                                                                59521
                                                                                                                                                                                                                                                                                        59461
                                                                                                                                                                                                                                                                                                                                               59401
                                                                                                                                                                                                                                                                                                                                                                                                       59341 TCCCGTTCGCGCTATGCTCGAGCACGCTCCCGAGGATGTGTACGTCCTCGGAACTCACCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59174
                                                                                                                                                                                                                                                           160
                                                                                                                                                                                                                                                                                                                                                                            122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           σ
                                                     AArgValLeuGlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :||]|||||]:::|||::::::::|||
AGATGCCGACGTTGTGGTGGTTTCCGTCCCCATCTCCGTGACTGAAGACGTCATCCGTGA 59280
TGACGAAGCCCGTGAAGAGCTCCTCCGCGCCCCTCAGACGCTTC
                         aAlaSerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPhe
                                                                                                              CATCGAAGAGGTCGCCAGC-----
                                                                                                                                                                                                                             CGTTGAGACCACCCCGGAGGAACACGATCGCACTATGGCCGTCGTTCAGTGCCTCACCCA
                                                                                                                                                                                                                                                    oValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHi
                                                                                                                                                                                                                                                                                                                 -ArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArgPr
                                                                                                                                                                                                                                                                                                                                              CCTCTTCGGCCCCACGTCCCCAGTCTCCGCGGTCAGACCGTCATCCTCACGCCCACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCGCACCACACGTTCCTGAGGGTTCCCTCCTCACCGACGTGACCTCCGTCAAGGTTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGl 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACGACGGTCATGAGGTAGTTATCACTGGTTCTAACCCTCACACCGCCGAACGCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluAlaGly-SerArg-----ThrLeuValValAspLeuValProProProGlyArgPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArg
                                                                                                                                        pValArgAlaLeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAl
                                                                                                                                                                       TGCTGTCCTCCTCGCTGCAGGCGCCCCCATAGGCCGTTTCCTCCCAAGTCTCGAGCTCGA
                                                                                                                                                                                                  sAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArg-----LeuGlyValAs
                                                                                                                                                                                                                                                                                     GCGTAGTGGTCCCTGGACTCGCCGCGTTCGTCGTTATCTCGAGCGGAAAGGCGCTCGAGT
                                                                                                                                                                                                                                                                                                                                                                         oMetPheAlaProAlaAla---GlyMetThrGlyArgProValAlaAlaValValThr--
                                                                                                                                                                                                                                                                                                                                                                                                                             yMetAlaAlaGluLeuAlaAlaHisAlaPro---GlyValGlnHisValGlyLeuAsnPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCGAGCTC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         oAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGGATCGCGATACTCGGCGGTACCGGCGCCATGGGCCGTCTTATCGCCCGCGAGCTCCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.09e-08
323.00
52.55%
36.47%
19.76%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               700001
800001
900001
1000001
1100001
1200001
1300001
1400001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1600001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACGTCGAGGCT---GCTCCGACCAACGTCGATGCCGCCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     810000
1010000
1110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1510000
1610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1694968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1410000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1210000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                              CCCGTGTATCGCCTACTCATGGACGTCGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   93
41
104
18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        110000
                          250
59794
                                                                                                                                                                                                                            59580
                                                                                                                                                                                                                                                           180
                                                                                                                                           216
                                                                                                                                                                                                                                                                                                                   160
                                                                                                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                       59751
                                                                                                                                                                                                                                                                                        59520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59113
```

Percent Similarity:
Best Local Similarity:
Query Match:

1.66e-05 237.00 45.39% 27.66% 14.50%

Length:
Matches:
Conservative:

78 50 110 44

Alignment

No.:

Sequence 1122 BP; 248 A; 242 C; 339

G. 293 .. '-0

U; 0 Other

US-10-089-514-6

(1-322)

x AAD50753

(1-1122)

Gaps: Mismatches: Indels:

```
RESULT 11
AAD50753
ID AAD50
XX AAD50
XX AAD50
XX TOCOP
CW TYPA;
KW TOCOP
KW TYPA;
KW ENZYM
OS Esche
XX TOS
FT CDS

                                                                                         The present invention relates to novel nucleic acid molecules encoding CC enzymes involved in tocopherol biosynthesis. Polynucleotides of the cinvention comprise a promoter region functioning in a plant cell to cause production of an mRNA molecule linked to a heterologous nucleic acid comprisments and enzyme with prephenate dehydrogenase (tyrA) or chorismate mutase activities or a tyrA from Erwinia herbicola or Escherichia coli bifunctional prephenate dehydrogenase. Sequences of the cinvention are useful for producing a plant such as canola, maize, carbidopsis, Brassica campestris, B.napus, soybean, crambe, mustard, cc castor bean, peanut, sesame, cottonseed, linseed, safflower, oil palm, cc clax and sunflower having increased tocopherol levels, especially alphacor genetic background but lacking the exogenous nucleic acid molecule. They are useful for reducing tocopherol levels in a plant. They are also useful for producing plant expressing homogentesic acid and plastoquinones. The present sequence is Escherichia coli bifunctional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Novel nucleic acid molecule encoding enzymes involved in tocopherol biosynthesis useful for enhancing or altering tocopherol production plants such as canola, maize, soybean, crambe, mustard, castor bean, peanut, sesame, or cottonseed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tocopherol biosynthesis; prephenate tyrA; transgenic; transgenic plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAD50753;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAD50753 standard;
                                                                prephenate dehydrogenase DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-MAY-2001; 2001US-0289527P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-MAY-2002; 2002WO-US013898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-NOV-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200289561-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      enzyme; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Escherichia coli bifunctional prephenate dehydrogenase DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  02-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (MONS ) MONSANTO TECHNOLOGY LLC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2003-058889/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5; Page 201-202; 206pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAE32998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mitsky
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product= "Bifunctional prephenate dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dehydrogenase;
homogentesic ac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       e; chorismate mutase; acid; plastoquinone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ij
```

```
RESULT 12

AAV21209 09/c

AAV21209 01/c

Continuation (10 of 17) c

WP Sequence split into 17

WP AAV21209 01

WP AAV21209 02

WP AAV21209 02

WP AAV21209 03

WP AAV21209 04

WP AAV21209 05

WP AAV21209 06

WP AAV21209 06

WP AAV21209 07

WP AAV21209 07

WP AAV21209 07
                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ર્ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ર્ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ર્ક
                                                                                                                                                                                    유
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
Fragment Name
AAV21209 00
AAV21209 01
AAV21209 02
AAV21209 03
AAV21209 03
AAV21209 05
AAV21209 05
AAV21209 07
AAV21209 07
                                                                                                                                                                                                                                      1021
                                                                                                                                                                                     1081
                                                                                                                                                                                                            265
                                                                                                                                                                                                                                                              245
                                                                                                                                                                                                                                                                                                                                         901
                                                                                                                                                                                                                                                                                                                                                                                             841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       553
                                                                                                                                                                                                                                                                                       961
                                                                                                                                                                                                                                                                                                                                                                   224
                                                                                                                                                                                                                                                                                                                                                                                                                     204
                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            œ
                                                                                                                                                                                                                                                                                                                                       GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly---MetAlaAla
                                                                                                                                                                                    AGCCGC
                                                                                                                                                                                                           GlyArg
                                                                                                                                                                                                                                    GACAGTTTCCGCAAGGTGGAGCACTGGTTCGGCGATTACGCACAGCGTTTTCAGAGTGAA 1080
                                                                                                                                                                                                                                                           GluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaPro
                                                                                                                                                                                                                                                                                      TATAAGCGTTTCGGCGAGGCGATTGAGTTGCTGGAGCAGGCGATAAGCAGGCGTTTATT
                                                                                                                                                                                                                                                                                                                                                                                           TCTTCGCCGATTTACCGCCTTGAGCTGGCGATGGTCGGGCGACTGTTCGCTCAGGATCCG
                                                                                                                                                                                                                                                                                                                                                                                                          AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                            TTTGCTTACGGGCTGCACCTGGCAGAAGAAATGTTCAGCTTGAGCAACTTCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAGCATACCAATGGTTTCTGGAGCAAATTCAGGTCTGGGGGGGCTCGGTTGCATCGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thrala-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACAGCGGTAGCCTGGCAAAGCAAGTT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGCTGGCGCCACGATGGCCCGGTA-----CTGGGGTTACACCCCAATGTTCGGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGATTGTTAGTGTGCCAATCCACGTTACTGAGCAAGTTATTGGCAAATTACCGCCTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGCGCCGTCGAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCGAAA---GATTGTATTCTGGTTGATCTGGCATCAGTGAAAAATGGACCATTACAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTTATCAGGTGCGGATTCTGGAG-----
                                                                                                                                                                                                            266
                                                                                                                     of AAV21209
17 fragments
     100001
200001
300001
400001
500001
600001
                                                                                                       Begin
                                                                                                                                from
    End
110000
210000
310000
410000
510000
610000
710000
                                                                                                                     FOCUS
                                                                                                                    base 900001 (Methanococcus jannaschii
US AAV21209 Accession Aav21209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -GTGGTCTGGTGTGATGGACGTAAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ------Caacatgactgggatcga
                                                                                                                                                                                                                                                                                                            ----ArgArgAļaLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATGCCGGAATG
                                                                                                                                                                                                                                                                                      1020
                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             435
                                                                                                                                                                                                                                                                                                                                                                                          900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27
                                                                                                                                 circular
                            문
                                                 Ş
                                                                              맑
                                                                                                  δ
                                                                                                                                밁
                                                                                                                                                       Ş
                                                                                                                                                                                맒
                                                                                                                                                                                                    S
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                              뮹
                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-6 (1-322) x AAV21209_09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAV21209 08

AAV21209 09

AAV21209 10

AAV21209 11

AAV21209 12

AAV21209 13

AAV21209 13

AAV21209 15

AAV21209 15
                                                                                                                                                                                                                                                                                      29619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30033
  264 ProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                            ATAAATCAGTGTAAGGAAATCAGTGAAATTGTTAAAAATAAAGATAGAGAAGGTTTTGTT
                                                                             GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAlaLeu
                                                                                                                                GCCTCCCCAATATACGAGTTGATGATTTCTATCATTGGGAGGATTATAGGACAGAATCCC
                                                                                                                                                     AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                    LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                  ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                      GAGTGGTTTAACAAGGTTTATAATTTTTTAAAGAAAGAAGGGGCTTAAGGTTATAGTCATC
                                                                                                                                                                                                                                                                                                           ProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                              AlaGlyMetThrGlyArgProValAlaAlaValThr------ArgAspGly
                                                                                                                                                                                                                                                                                                                                                                                           AlaAlaHisAla---ProGlyValGlnHisValGlyLeuAsnProMetPheAlaProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                             AGGGAAGGATGTTTATTAATGGACATAACCTCAATTAAAGAGATTCCTTCAAAAGCTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGlyMetAlaAlaGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTGTAĞCAĞTTCCAATAAATĞTTACAGAAAGGGTTATAAAAGAGĞTAGCTCCTCATGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeuMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGG---GTTGAATTTACTAACAACAACATTGAAGCTGCT---AAAAAAGGAGATATTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTAACGTTATAĞTTACTGGGAGAGATATTGAGAAAĞĞAAAAATGTTGAGAAAGAGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTATTGGAGGAACTGATGGTTTAGGGAAGTGGTTTGCAAGATATTTAAAAAATAAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAlaGly ::::::|||||||::: ||||
                                                    AlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAla
                                                                                                                                                                                   ATATCTTTAGGAGCAACGTTAAAAGAACTCAACGTTGATATAAAAGAGTCAAGAAAGTTT
                                                                                                                                                                                                                                    CCTCCAGAAAAACATGATAGAATTATGGGGATTGTTCAGGGTTTGACTCACTTCGCCTTT
                                                                                                                                                                                                                                                                                                                                         ACACCTTCTTTGTTAAGACAAGTGGTTATCTTAACCCCCTTCTGAAAAAGCATAAAAATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerArgThrLeuValValAspLeuValProProGlyArgProAspAlaCysLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.00164
235.00
42.76%
23.36%
14.37%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     800001
900001
1000001
1100001
11200001
1200001
1300001
1400001
15000001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1410000
1510000
1610000
1664976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        910000
1010000
1110000
1210000
1310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-110000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110000
71
59
158 ·
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             48
                                                                                                                                                                                                                                                            183
                                                                                                                                                                                                                                                                                                                                                                                                                     127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         88
                                                                                                                                                                                                                                                                                                                                                                                                                                                29740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29914
```

```
ABN83448
ID ABN83
XX ABN83
XX ABN83
XX ABN83
XX ABN83
XX AFGE
XX AFGE
XX AFGE
XX AFGE
XX ESCHE
XX FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT CDS
FT
                                                                                                                         Best 1
Query
DB:
        밁
                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                US-10-089-514-6
                                                                                                                                                           Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                        Alignment
                                                                                                                                                                                                                                                                                                                               The present invention relates to arogenate dehydrogenase (ADH) enzymes (see ABN83439-ABN83443 and ABB83248-ABB83251). The ADH enzymes catalyse the last stage of the metabolic pathway of tyrosine biosynthesis and are potential targets of herbicides. The present sequence is the coding sequence for prephenate dehydrogenase, which was used to illustrate the
                                                                                                                                                                                                                                                                              Sequence 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-500449/53.
P-PSDB; ABB83256.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-DEC-2000;
                                                                                                                                                                                                                    No.:
                                                                                                                                                                                                                                                                                                                 sequence for invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matringe M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-DEC-2001; 2001WO-FR003832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200246441-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      prephenate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arogenate dehydrogenase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       27-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABN83448
                                                                                                                                           Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             herbicides,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (AVET ) AVENTIS CROPSCIENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        13-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABN83448;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29199
        304
                                                                                                                                                                                                                                        Scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              281
                                                                                                                                                           Similarity:
                                          æ
    GTTATCGTCGGCGGTGGCGGTCAGATGGGACGCCTGTTCGAGAAGATGCTGACCCTCTCG
                              ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAAGATGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProGluLeuAla
                                                                                (1-322)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dehydrogenase; gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acid
also
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Page 58-60; 66pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           coli prephenate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rippert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000FR-00015723.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                            BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /rcag= a
/product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         encoding arogenate dehydrogenase, useful for identifying related protein and herbicide-tolerant plants.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l. .1122
                                                                                                                                                                                                                                                                              243
                                                                                x ABN83448
                                                                                                                     2.86e-05
233.00
45.04%
27.30%
14.25%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Þ
                                                                                                                                                                                                                                                                          A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----AsnieuAspGlyValPheGlyGluieuArgArgieuMetGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1122
                                                                                                                                                                                                                                                                            245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      enzyme; herbicide; tyrosine biosynthesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Prephenate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           dehydrogenase coding sequence
                                                                                                                                                                                                                                                                          Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ВP
                                                                                (1-1122)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      French.
                                                                                                                                                                                                                                                                          342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ds.
                                                                                                                 Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                          G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              dehydrogenase"
                                                                                                                                                                                                                                                                          292
                                                                                                                                                                                                                                                                          Η,
                                                                                                                                                                                                                                                                          0
                                                                                                                 1122
77
50
111
44
8
                                                                                                                                                                                                                                                                          U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                         are
    363
                                        27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29200
RESULT 14
ABA99612
ID ABA99
XX ABA99
XX 17-MA
DT 17-MA
XX Shiki
KW vitam
KW feed;
KW tocop
XX tocop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                Shikimate pathway; chorismate mutase; tyrh; prephenate dehydrogenase; vitamin E; vitamin K; ubiquinone; fat-soluble antioxidant; transgenic; feed; pharmaceutical; cosmetic; aromatic amino acid; salicylic acid; folic acid; phenylpropanoid; flavanoid; plant; abiotic stress resistance; tocopherol; tocotrienol; gene; ds.
                                                                                                                                     E. coli tyrA
                                                                                                                                                                                                                                                      ABA99612
                                                                                                                                                                           17-MAY-2002
                                                                                                                                                                                                                  ABA99612;
                                                                                                                                                                                                                                                                                                                                   1081
                                                                                                                                                                                                                                                                                                                                                                                                                1021
                                                                                                                                                                                                                                                                                                                                                                         265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                      245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  436 GTGATTGTTAGTGTGCCAATCCACGTTACTGAGCAAGTTATTGGCAAATTACCGCCTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 406 GCGGCTGATATTGTTGCC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            364 GGTTATCAGGTGCGGATTCTGGAG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       68 ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                         GlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly---MetAlaAla
                                                                                                                                                                                                                                                        standard;
                                                                                                                                                                                                                                                                                                                                   AGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                GACAGTTTCCGCAAGGTGGAGCACTGGTTCGGCGATTACGCACAGCGTTTTCAGAGTGAA 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                GluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGCTTTATGCCGACATCATTATGTCGTCAGAGCGTAATCTGGCGTTAATCAAACGTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thrala-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGCTGGTGGCGCATGATGGTCCGGTG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGAAA---GATTGTATTCTGGTCGATCTGGCATCAGTGAAAAAATGGGCCATTACAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TATAAGCGTTTCGGCGAGGCGATTGAGTTGCTGGAGCAGGCGATAAGCAGGCGTTTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTTCGCCGATTTACCGCCTTGAGCTGGCGATGGTCGGGCGACTGTTTGCTCAGGATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTGCTTACGGGCTGCACCTGGCAGAAGAAAATGTTCAGCTTGAGCAACTTCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCGCCGTCGAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAGCATACCAATGGTTTCTGGAGCAAATTCAGGTCTGGGGCGCTCCGGCTGCATCGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACAGCGGTAGCCTGGCAAAGCAAGTT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                       DNA.
                                                                                                                                                                           (first
                                                                                                                                                                                                                                                                                                                                                                         266
                                                                                                                                                                                                                                                      DNA;
                                                                                                                                                                           entry)
                                                                                                                                                                                                                                                          1238
                                                                                                                                                                                                                                                          쁑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GTGGTCTGGTGTGATGGACGTAAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           - CTGGGGCTACACCCGATGTTCGGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -CAACATGACTGGGATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -ArgargalaLeuala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GATGCCGGAATG
```

606

126

552 106 495 435

87

405 47

1020

244 960 900

223

239

840

203 780 183

720

163 660

```
Best Local Similarity:
Query Match:
DB:
ફ
                                밁
                                                             S
                                                                                                 밁
                                                                                                                          ક
                                                                                                                                                                밁
                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                               US-10-089-514-6 (1-322) x ABA99612 (1-1238)
                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                        This invention describes a novel method for the preparation of fine chemicals by culturing organisms in which the shikimate pathway has been altered relative to the wild type. The method involves a construct containing a plastid transit peptide, a chorismate mutase and/or prephenate dehydrogenase, linked to at least one regulatory sequence for transcription or translation in plants. The method is used to produce chemicals, particularly Vitamins E or K and/or ubiquinone, useful e.g. as fat-soluble antioxidants (in feeds, pharmaceuticals and cosmetics), but also aromatic amino acids, salicylic or folic acid derivatives, but plants with increased Vitamin E contents have improved resistance to plants with increased Vitamin E contents have improved resistance to abiotic stress, e.g. frost and drought. Transgenic plants with an altered shikimate pathway are useful as foods, fodder and in preparation of processed foodstuffs. Transgenic plants with modified shikimate pathways and increased pathways and particularly tocopherols and/or tocotrienols. This sequence encodes the Escherichia coli tyra (chorismate mutase prephenate dehydrogenase) protein used in the method
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Preparing fine chemicals, particularly Vitamins E and K, useful as antioxidants e.g. in foods or medicine, by growing organisms with altered
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-JUN-2000; 2000DE-01030647.
21-DEC-2000; 2000DE-01064454.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-JUN-2001; 2001WO-EP007391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               03-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200200901-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ioxidants e.g. in foods or medicine, kimate biosynthesis pathway.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2002-164442/21.
                                                                                                 388
                                                                                                                                                                 328
                                430
                                                                                                                                 28
8
                                                                48
                                                                                                                                                                                                æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUNGENE GMBH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAM49653.
                                                                                                                              GlySerArgThrLeuValValAspLeuValProProFroGlyArgProAspAlaCysLeu
                                                                                                                                                                                              ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                  GCGGCTGATATTGTTGCC
                                                               ValGlyAspValThrAlaProGlyProGluLeuAlaAlaLeuArgAspAlaAspLeu
                                                                                                 GGTTATCAGGTGCGGATTCTGGAG
                                                                                                                                                                 GTTATCGTCGGCGGTGGCGGTCAGATGGGACCCTGTTCGAGAAGATGCTGACCCTCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Page 55-57; 74pp; German
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  coli.
                                                                                                                                                                                                                                                                                                                                                                                               BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers 25. .1146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product= "tyrA"
                                                                                                                                                                                                                                                                                                                                                                                               269
                                                                                                                                                                                                                                                                             3.14e-05
233.00
45.04%
27.30%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              & CO KGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kunze
                                                                                                                                                                                                                                                                                                                                                                                               A
                                                                                                                                                                                                                                                                                                                                                                                               275
                                                                                                                                                                                                                                                                                                                                                                                             ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sommer S;
                                                                                                                                                                                                                                                                                                                                                                                               370
                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                               ç,
                                                                                                                                                                                                                                                                                                                                                                                               324
                                                                                                                                                                                                                                                                                                                                                                                        Ť,
                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                             1238
77
50
111
44
8
                                                                                                                                                                                                                                                                                                                                                                                             ü
                                                                                                 -CAACATGACTGGGATCGA
                                                                                                                                                                                                                                                                                                                                                                                               0 Other;
                                GATGCCGGAATG
 87
                                                                67
                                                                                                                                 47
                                459
                                                                                                 429
                                                                                                                                                                387
                                                                                                                                                                                                                                                                                                                                                             AAL46032
ID AAL
XX
 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뭐
                                                                                                                                                       Vitamin E; homogentisate; HG; homogentisate-1,2-dioxygenase; HGD; maleylacetoacetate-isomerase; MAAI; fundrylacetoacetate-hydrolase; transgenic; nutrition; antioxidant; cardiovascular disease; cancer; immune system; generalised age-related degeneration; animal feed; meat quality; cosmetics; growth regulator; herbicide; cardiant; cytostatic; immunostimulant; enzyme; TyrA; chorismatmutase;
                                                                                                                                                                                                                                                                               E coli TyrA gene
                                                                                                                Escherichia coli
                                                                                                                                             prephenatdehydrogenase;
                                                                                                                                                                                                                                                                                                               11-JUL-2002
                                                                                                                                                                                                                                                                                                                                               AAL46032;
                                                                                                                                                                                                                                                                                                                                                                              AAL46032 standard; DNA; 1238 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                               1105 AGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1045 GACAGTTTCCGCAAGGTGGAGCACTGGTTCGGCGATTACGCACAGCGTTTTCAGAGTGAA 1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               265 GlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                985 TATAAGCGTTTCGGCGAGGCGATTGAGTTGCTGGAGCAGGGCGATAAGCAGGCGTTTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               204 AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              184 LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             164 ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                631 GACAGCGGTAGCCTGGCAAAGCAAGTT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              520 CCGAAA---GATTGTATTCTGGTCGATCTGGCATCAGTGAAAAATGGGCCATTACAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            224 GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              147 ThrAla-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             127 AlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              107 GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88 MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly---MetAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGCTTTATGCCGACATCATTATGTCGTCAGAGCGTAATCTGGCGTTAATCAAACGTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCGCCGTCGAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAGCATACCAATGGTTTCTGGAGCAAATTCAGGTCTGGGGCGCTCGGCTGCATCGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATGCTGGTGGCGCATGATGGTCCGGTG----CTGGGGGCTACACCCGATGTTCGGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCTTCGCCGATTTACCGCCTTGAGCTGGCGATGGTCGGGCGACTGTTTGCTCAGGATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTGCTTACGGGCTGCACCTGGCAGAAGAAAATGTTCAGCTTGAGCAACTTCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                               1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               266
               /product= "bifunctional chorismatmutase/
prephenatdehydrogenase"
                                                                                Location/Qualifiers
                                              *tag=
                                                 b
                                                                                                                                                gene;
                                                                                                                                                de.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GTGGTCTGGTGTGATGGACGTAAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----ArgArgAlaLeuAla
```

244

984

239 924 223 864 203 183

904

163

744

146

684

126 576 106 519

유

```
S
                                  밁
                                                              Ś
                                                                                               뭐
                                                                                                                           ঠ
                                                                                                                                                              밁
                                                                                                                                                                                        ş
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-089-514-6 (1-322) x AAL46032 (1-1238)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present invention relates to a method of producing Vitamin E, CC involving modulating the synthesis of vitamin E by reducing decomposition of homogentisate (HG) by reducing the activity of homogentisate-1,2-CC dioxygenase (HGD), maleylacetoacetate-isomerase (MAAI) and/or CC funarylacetoacetate-hydrolase (FAAH). The method is used to produce transgenic organisms that are useful in animal and human mutrition and CC for the isolation of vitamin E. Vitamin E is a fat-soluble antioxidant with a protective effect against cardiovascular disease and cancer, it also stimulates the immune system and may prevent generalised age-related degeneration. When used in animal feeds, it improves quality and concertified enzymes are useful in screening for specific inhibitors, potentially useful as growth regulators, e.g. cherbicides. The present sequence is the E coli TyrA gene, which encodes the bifunctional chorismatmutase/prephenatdehydrogenase enzyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 1238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Page 65-67; 98pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Increasing Vitamin comprises reducing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2002-362682/39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            19-SEP-2000; 2000DE-01046462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18-SEP-2001; 2001WO-EP010779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200231173-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (SUNG-)
   127
                                                                 107
                                                                                                 520
                                                                                                                                                              460
                                                                                                                                                                                                                            430
                                                                                                                                                                                                                                                                                           388
                                                                                                                                                                                                                                                                                                                                                        328
                                                                                                                              88
                                                                                                                                                                                                                                                          48
                                                                                                                                                                                        68 ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                       28
                                                                                                                                                                                                                                                                                                                                                                                       œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAO17421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUNGENE GMBH
                                                         GluteuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                          MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly---MetAlaAla
                                                                                                                                                                                                                                                                                                                                                                               ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
AlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyVal 146
                               ATGCTGGTGGCGCATGATGGTCCGGTG------CTGGGGCTACACCCCGATGTTCGGTCCG
                                                                                             CCGAAA----GATTGTATTCTGGTCGATCTGGCATCAGTGAAAAATGGGCCCATTACAGGCC
                                                                                                                                                          GTGATTGTTAGTGTGCCAATCCACGTTACTGAGCAAGTTATTGGCAAATTACCGCCTTTA
                                                                                                                                                                                                                                                       ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                                                                                                                                                                                                     ĢļySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                         GGTTATCAGGTGCGGATTCTGGAG-----
                                                                                                                                                                                                                                                                                                                                                      GTTATCGTCGGCGGTGGCGGTCAGATGGGACGCCTGTTCGAGAAGATGCTGACCCTCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ebneth M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BP; 269 A; 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.14e-05
233.00
45.04%
27.30%
14.25%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E production, useful activity of enzymes t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             & CO KGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kunze I;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             370 G; 324 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               in human or animal nutrition, that metabolize homogentisate.
                                                                                                                                                                                                                                                                                        ----CAACATGACTGGGATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1238
77
50
111
44
                                                                                                                                                                                                                           GATGCCGGAATG
                                                              126
                                                                                             576
                                                                                                                             106
                                                                                                                                                            519
                                                                                                                                                                                                                         459
                                                                                                                                                                                                                                                                                        429
                                                                                                                                                                                           87
                                                                                                                                                                                                                                                        67
                                                                                                                                                                                                                                                                                                                       47
                                                                                                                                                                                                                                                                                                                                                                                      27
```

```
1105 AGCCGC 1110
                                                                                                    1045 GACAGTTTCCGCAAGGTGGAGCACTGGTTCGGCGATTACGCACAGCGTTTTCAGAGTGAA 1104
                                                265 GlyArg
                                                                                                                                                                                                        985 TATAAGCGTTTCGGCGAGGCGATTGAGTTGCTGGAGCAGGGCGATAAGCAGGCGTTTATT
                                                                                                                                                                                                                                                                                                               925
                                                                                                                                                                                                                                                                                                                                                                                                                     865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            164 ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  685 GAAĞCATACCAATGGTTTCTĞGAGCAAATTCAGGTCTGGĞĞCGCTCĞĞCTGCATCĞTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   147 ThrAla-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      631 GACAGCGGTAGCCTGGCAAAGCAAGTT---
                                                                                                                                                                                                                                                                                                                                                             224 GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        184 LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                    GluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaPro
                                                                                                                                                                                                                                                                                                            CAGCTTTATGCCGACATCATTATGTCGTCAGAGCGTAATCTGGCGTTAATCAAACGTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                   TCTTCGCCGATTTACCGCCTTGAGCTGGCGATGGTCGGCGACTGTTTGCTCAGGATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTGCTTACGGGCTGCACCTGGCAGAAGAAAATGTTCAGCTTGAGCAACTTCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCGCCGTCGAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACT
                                                   266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -GTGGTCTGGTGTGATGGACGTAAACCG
                                                                                                                                                                                                                                                         -ArgArgAlaLeuAla
                                                                                                                                                                                                        1044
                                                                                                                                                                                                                                                           244
                                                                                                                                                                                                                                                                                                               984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         684
                                                                                                                                                       264
                                                                                                                                                                                                                                                                                                                                                               239
                                                                                                                                                                                                                                                                                                                                                                                                                   924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              804
```

Search completed: October 5, 2005, 10:51:48
Job time: 728.456 secs

a

```
Minimum
Maximum
                                                                                                                                                                                                                                                            Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Command line parameters:

-MODEL-frame+ p2n.model -DEV=xlh
-Q=/cgn2_1/USPTO_spool_h/US10089514/runat_04102005_105746_8071/app_query.fasta_1.1621
-DB=Issued_Patents_NA -QFMT=fastap_-SUFFIX=rni -MINMATCH=0.1 -LOOPCL=0
-LOOPEXT=0 -UNITS-bits -START=1 -END=-1 -MATRIX=biosum62 -TRANS=human40.cdi
-LIST=45 -DOCALIGN=200 -THR SCORE=pct -THR MAX=100 -THR MIN=0 -ALIGN=15
-MODE=LOCAL -OUTFMT=pto -NORM-ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER=US10089514 @CGN 1 1116 @runat 04102005 105746_8071 -NCPU=6 -ICPU=3
-NO MMAP -LARGEQUERY -NEG_SCORES=0 -MAIT -DSPBLOCK=100 -LONGLOG
-DEV_TIMEOUT=120 -WARN TIMEOUT=30 -THREADS=1 -XGAPDF=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OM protein - nucleic search, using frame_plus_p2n mode:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scoring table:
                                                                                                                        0000
      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      95.
                          110987654321
                                                                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
DB
    661.5
661.5
661.5
235
235
227
227
227
216
216
216
216
200
166.5
                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seq length: 0 seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
  40.5 888 4
40.5 2888 4
40.5 2888 4
40.5 2888 7
14.4 1664976 7
13.9 1131 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
13.2 1830121 7
10.2 49225 7
                                                                                                                                                                                                                                                    Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                      Issued Patents NA:*
1: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
2: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*
3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*
4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*
5: /cgn2_6/ptodata/1/ina/PCTUS_COMB.seq:*
6: /cgn2_6/ptodata/1/ina/backfiles1.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-6
1635
1 MSGFPRSVVVGGSGAVGGMF......HCQELFRTLHRTDDEGEKDR 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      October
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1202784 segs, 818138359 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5, 2005, 10:07:08; Search time 176.216 Seconds (without alignments) 2989.973 Million cell updates/sec
B 3 US-08-765-907A-2
B 4 US-09-987-614A-2
B 3 US-08-765-907A-1
B 4 US-09-987-614A-1
B 4 US-09-987-614A-1
C 5 US-09-987-614A-1
C 8 US-09-987-614A-1
C 9 US-09-992-570-1
C 9 US-09-489-039A-4572
C 1 4 US-09-557-884-1
C 1 US-09-543-681A-1138
C US-09-9643-681A-1138
C US-09-9643-681A-1138
C US-09-962-540-5637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.6 (c) 1993 - 2005 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           summaries
                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.5
7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ltd.
Sequence 2, Appli
Sequence 1, Appli
Sequence 4572, App
Sequence 1, Appli
Sequence 1, Appli
Sequence 1138, App
Sequence 5637, Ap
Sequence 1269, Ap
                                                                                                                                                                                                                                                          Description
                                                                                                     Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
```

45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
139	139.5	139.5	139.5	9	139.5	٥	139.5	9	•	140	140	140	141.5	144	145	145	145	145	145	145	146	146	146	146	146.5	147	147	149	149	149		ω
•	æ .5	•	•		8.5	•	8 .5	٠	٠		6	٠ م	. 7		.9	9		•	•	8.9	٠			٠		9.0	9.0	9.1	9.1	9.1	'n	10.0
2175	15120	15079	15079	11604	11604	11604	1299	1299	1299	4411529	4403765	21010	1527	4403765	54	154746	3957	3600	3600	3600	4953	4158	3282	2163	2376	19302	1848	3812	3810	2732	1362	4411529
4	4	4	ω	4	4	w	4	4	ω	ω	w	4	4	w	4	4.	4.	ω	ω	r	4	4	4	4	4	4	4	4	4	4.	4	ω
US-09-252-991A-15144	-09-385-040-	9-726-614-	-09-385-028-	9-385-0	9-726-614-	US-09-385-028-13	9-385-040-	9	9	-09-	-09-103-840	9-902-540-11	US-09-248-796A-4088	US-09-103-840A-2	٩	US-09-827-688-8	<u>-</u>	9	8	US-08-537-002A-5	US-09-252-991A-5227	9-252-991A-5	9	9-252-991A-5	US-09-252-991A-6630	-09-902-540-115	-09-902-540-332	ò	S	US-09-589-892B-3	09-724-7	US-09-103-840A-1
151	Sequence 1, Appli	1,	e 1, 7	13,	13,	13,	Sequence 21, Appl	21,	21,	e 1,	e 2, Appl	1188,	4088,	æ	ω,	ω,	19:	5	5	Sequence 5, Appli	5227,	e 5348,	e 5256, A	e 5310,	e 6630, A	1155,	e 332	641,	3021,	3, 2	31, App	Sequence 1, Appli

ALIGNMENTS

```
APPLICANT: FAMECHON, Alain
APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins And Method
TITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/08/765,907A
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: PATENTIN VET. 2.0
LENGTH: 888
TYPE: DNA
             Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: BLANC, Ver
APPLICANT: HIBAUT,
APPLICANT: BAMAS-JAC
APPLICANT: BLANCHE,
APPLICANT: COUZET,
APPLICANT: BARRIERE,
APPLICANT: DEBUSSCHE
                                                                                Alignment Scores: Pred. No.:
                                                                                                                              ; ORGANISM: Streptomyces pristinaespiralis
US-08-765-907A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-765-907A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/08765907A Patent No. 6352839
                                                                                                                                                                                                                                                                                                                                                                                                               THIBAUT, Denis
BAMAS-JACQUES, Na
BLANCHE, Francis
COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                             BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Veronique
4.81e-51
661.50
60.38%
49.52%
40.46%
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nathalie
             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                 Method
                                                                                                                                                                                                                                                                                                               For Preparing
 888
155
34
101
23
```

```
RESULT 2
US-0987-614A-2
JS-09-087-614A-2
Sequence 2, Application US/099
Fatent No. 6833382
Fatent No. 6833382
FAPPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
                                                                                                                            밁
                                                                                                                                                  S
                                                                                                                                                                                   밁
                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                               ୃଚ
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-089-514-6 (1-322) x US-08-765-907A-2 (1-888)
                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                    220
                                                                                                                                                                                                                                                                                                                                                                                                                                    610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13
                                                                                                                                                                                                                                                                                                                                                                   GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis
                                                                                                                                                                                                             GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                                                          CTGGAACGCCTGTGCGCGCGCGATGTTCACCGCCCTGCAC
                                                                                                                                                                                                                                                                           ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla
                                                                                                                                                                                                                                                                                                           CGGCAGGCGCTGGGCCGGCCTG---
                                                                                                                                                                                                                                                                                                                                 ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                 TIGGGGGACAGTGCCCGCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATGCCGCGGTGCTGGCCTTCGGGCTGGGCCTGGGTGAGCTGTCGGTGGACGTGGGGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCAAGAGCCGGATCGCCGGGCGGCTGCGTGAGGCGGCGCCGGGGCTGCAGGCGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCGGACGGGTGGTGGCCGGTGATGTGCGGCGGCCGGGCCGGAGGCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCACCGACGGGCCCGGTGTGCGGGCCCTTGGTGGAGCTGGTGGCCGGGTGGGGGGGCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTGAACCCGATGTTCGCCCCCCTCGCTGGGTCTTCAGGGGCGGCCGGTGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGGTGTTCGGGCGTTGTGGTGGTGGGGCGGGGGCCGGTGGGGCCGCATGTTCAGC
                                                              US/09987614A
                                                                                                                                                                                     -GCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCGCGGAG
                                                                                                                                                                                                                                                                                                         - GTGCGGCTGGGGCAGGCCGTCGAG
                                                                                                                                                     312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            139
                                                                                                                                                                                   849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         119
                                                                                                                                                                                                                                                                                                         777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41
                                                                                                                                                            Ś
                                                                                                                                                                                          밁
                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                 g
                                                                                                 δ
                                                                                                                                    멍
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-6 (1-322) x US-09-987-614A-2 (1-888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-987-614A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO 2
LENGTH: 888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: Patentin Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: Streptogramins And Method For Preparing TITLE OF INVENTION: Mutasynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: DNA
ORGANISM: Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          No.:
                                                                                                                                                                                                                                                              310
                                                                                                                                                                  140
                                                                                                                                                                                                                                                                             100 ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly 119
                                                                                                                                                                                                                                                                                                                                                                                    190
                                                                                                                                                                                                                                                                                                                                                                                                                                               130
                                                                                                                                                                                                                                                                                                                                                                                                  60 AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BARRIERE, Jean-Claude
DEBUSSCHE, Laurent
FAMECHON, Alain
PARIS, Jean-Marc
DUTRUC-ROSSET, Gilles
                               HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                       CATGCCGCGGTGCTGGCCTTCGGGCTGGGCCTGGGTGGACGTGGGGGGCG
                                                                                                                                     GTCACCGACGGGCCCGGTGTGCGGGGCCCCTGGTGGAGCTGGTGGCCGGGTGGGGGGGCCCCGG
                                                                                                                                                             ThrargaspGlyProGlyValThralaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                  CTGAACCCGATGTTCGCCCCCTCGCTGGGTCTTCAGGGGGCGGCCGGTGGCGGCGGTGGTG
                                                                                                                                                                                                                   LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaAlaVal
                                                                                                                                                                                                                                                             GTCAAGAGCCGGATCGCCGGGCGGCTGCGTGAGGCGGCGCCGGGGCTGCAGGCGGTGGGG
                                                                                                                                                                                                                                                                                                                        GCGGTGGAGGTGCTGGCGGGGGTGATGCGGCCCGGTGCGCTCGCGGACACCTTGTCG
                                                                                                                                                                                                                                                                                                                                      AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                    GCGGCGCTGGCGGCGGACGTGGTGGTGCTGGCGGTGCCGGAGCCGGTGGCGTGGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGGCGGACGGGGTGCGGGTGGTGGCCGGTGATGTGCGGCGGCCGGGGCCGGAGGCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCGGTGTTCGGGCGTTGTGTGGTGGTGGGCGGCGGGGCCGGGTGGGGCCGCATGTTCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BAMAS-JACQUES, Nathalie
BLANCHE, Francis
COUZET, Joel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.81e-51
661.50
60.38%
49.52%
40.46%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              888
155
34
101
23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -éréecceeeccéér
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        βĄ
```

489

509

549

139

369

309 99 249 79

429

189 59 129

79

```
APPLICANT: THIBAUT, Denis
APPLICANT: BANAS-JACQUES, Nathalie
APPLICANT: BLANCHE, Francis
APPLICANT: BLANCHE, Francis
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: BARRIERE, Jean-Claude
APPLICANT: PARIS, Jean-Marc
APPLICANT: PARIS, Jean-Marc
APPLICANT: PARIS, Jean-Marc
APPLICANT: DUTRUC-ROSSET, Gilles
TITLE OF INVENTION: Mutasynthesis
TITLE OF INVENTION: Mutasynthesis
FILE REFERENCE: Streptogramin genes
CURRENT FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 1
LENGTH: 2888
TYPE: DNA
ORGANISM: Streptomyces pristinaespiralis
US-08-765-9078-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
     밁
                               á
                                                                           밁
                                                                                                          र्
                                                                                                                                                  밁
                                                                                                                                                                                8
                                                                                                                                                                                                                                                         Query Match:
DB:
                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-765-907A-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                     US-10-089-514-6 (1-322) x US-08-765-907A-1 (1-2888)
                                                                                                                                                                                                                                                                                                                                                 Pred. No.:
                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                      US-08-765-907A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application Patent No. 6352839
                                                                           1764
 1707 GCGGCGGÁCGGGTGCGGGTGGTGGCCGGTGÁTGTGCGGCGGCCGGGGCCGGAGGCGGTC 1648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 850 CTGGAACGGCTGTGCGCGCGGGATGTTCACCGCCCTGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    019
                                       42
                                                                                                                                                                                    N
                                                                                                                                                                     SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                          ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                           CACTGGCTGGCGTTCGGGGGGGTGGCCTGGCTGGAC---
                                                                                                          GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla
                                                                                                                                                TCGGTGTTCGGGCGTTGTGTGGTGGTGGGCGGGCCGGTGCGGTGGGCCGCATGTTCAGC 1765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCAGGCGTGGGCCGGCCTG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTGCGGGACAGTGCCCCGCGCGCATCTGGCGATGCTGGCGCTGGCCGGGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGGGGCGACGAGGAGACGTTCGCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Veronique
                                                                                                                                                                                                                                                                      2.48e-50
661.50
60.38%
49.52%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US/08765907A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -GCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCGCGGAG
                                                                                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     For Preparing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GTGCGGCTGGGGCAGGCCGTCGAG
                                                                                                                                                                                                                                                         2888
155
34
101
23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Вγ
                                                                           1708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            729
                                                APPLICANT: BLANC, Veronique
APPLICANT: THIBAUT, Denis
APPLICANT: HAMAS-JACQUES, Nathalie
APPLICANT: BLANCHE, Francis
APPLICANT: BLANCHE, Francis
APPLICANT: COUZET, Joel
APPLICANT: DENUSSCHE, Laurent
APPLICANT: DENUSSCHE, Laurent
APPLICANT: PAMECHON, Alain
APPLICANT: PAMECHON, Alain
APPLICANT: DARIS, Jean-Marc
APPLICANT: DYRRUC-ROSSET, Gilles
TITLE OF INVENTION: Streptogramins and Method For
                                                                                                                                                                                                                                                                                         US-09-987-614A-1/c
; Sequence 1, Application US/09987614A
; Patent No. 6833382
                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                          GENERAL INFORMATION
FILE REFERENCE: Streptogramin genes
CURRENT APPLICATION NUMBER: US/09/987,614A
CURRENT FILING DATE: 2001-11-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       120 LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100 ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly
                                                                                                                                                                                                                                                                                                                                                                                   987 CTGGAACGGCTGTĠĊGCGCGGGATGTTĊACCGCCCTĠĊÁC
                                                                                                                                                                                                                                                                                                                                                                                                                   300 GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis 312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240 ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGGCAGGCGCTGGGCCGCCTG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCGGACCCCGGACGTGTATTTCGACATCCAGGCCGACCCGACCCGGCCGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGCGGGACAGTGCCCCGCCGCATCTGGCGATGCTGGCGCTGCTGGCCCGGATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCACCGACGGGCCCGGTGTGCGGGGCCCTGGTGGAGCTGGTGGCCCGGGTGGGGGGCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGAACCCGATGTTCGCCCCCTCGCTGGGTCTTCAGGGGCGGCCGGTGGCGCGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTCAAGAGCCGGATCGCCGGGCGGCTGCGTGAGGCGGCGGGGCTGCAGGCGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGGTGGAGGTGCTGGCGGGGGGGGATACCTTGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGGGGCGACGAGGAGACGTTCGCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GCCCTGTTCGCCGAACTGCGCGGTGTGCTGGGCGAGCACGGCGCGGAG
                                                                         For Preparing Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GTGCGGCTGGGGCAGGCCGTCGAG
```

1228

219

1036

988

1060 259 239 1168 1288

199

1348

159

1408 139 1468 119 1528 99

```
S
                                문
                                                          S
                                                                                              밁
                                                                                                                         Ś
                                                                                                                                                                                    Ś
                                                                                                                                                                                                                       밁
                                                                                                                                                           문
                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                   뭉
                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: Streptomyces US-09-987-614A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-6 (1-322) x US-09-987-614A-1 (1-2888)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: US/08/765,907
PRIOR FILING DATE: 1997-03-20
NUMBER OF SEQ ID NOS: 17
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 1
LENGTH: 2888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.:
                                  1107
                                                                                              1167
                                                                                                                                                           1227
                                                                                                                                                                                                                       1287
                                                                                                                                                                                                                                                                                   1347
                                                                                                                                                                                                                                                                                                                                                   1407
                                                                                                                                                                                                                                                                                                                                                                                                                1467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           160
                                                                                                                                                                                                                                                                                                                                                                                  140
                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                          200
                                                                                                                                                                                                                                                     180
   260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N
                                                                                                                                                                                                                                         HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
ArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAla 279
                                                                                                            GlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla
                                                                                                                                                                                                                                                                                   GTGGTGGAGATGCCGGCGCGCGCGCACGACGACCTGACCGCCGCCGCAGCAGGCCGCCACG
                                                                                                                                                                                                                                                                                                       ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                                      ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLys
                                                          ArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAsp
                                                                                                                                                        CTGCGGGACAGTGCCCGCCGCCGCATCTGGCGATGCTGCCGCTGCTGCTGCCCGGATCGCC
                                                                                                                                                                                     LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                               GTCACCGACGGGCCCGGTGTGCGGGCCCTGGTGGAGCTGGTGGCCGGGTGGGGGCCCCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCAAGAGCCGGATCGCCGGGCGGCTGCGTGAGGCGCCGGGGCTGCAGGCGGTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCGGTGGAGGTGCTGGCGGGGTGATGCGGTCCGGTGCGGTGCTCGCGGACACCTTGTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGGCGCTGGCGGCGGACGTGGTGGTGCTGCCGGAGCCGGTGGCGTGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGCGGACGGGTGCGGGTGGTGGTGATGTGCGGCGGCCGGGGCCGGAGGCGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgProAspAlaCysLeuVal-----GlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCGGTGTTCGGGCGTTGTGGTGGTGGGCGGCGGGGCCGGTGGGGCCGCATGTTCAGC 1765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                            CATGCCGCGGTGCTGGCCTTCGGGCTGGGCCTGGGTGGACGTGGGGGGGCG
                                                                                                                                                                                                                                                                                                                                                                                                             CTGAACCCGATGTTCGCCCCCCTCGCTGGGTCTTCAGGGGCGGCCGGTGGCGGCGGTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.48e-50
661.50
60.38%
49.52%
40.46%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pristinaespiralis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
                              -GTGCGGCTGGGGCAGGCCGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2888
155
34
101
23
                                                                                                                                                        1168
                                                                                                                                                                                       219
                                                                                                                                                                                                                      1228
                                                                                                                                                                                                                                                     199
                                                                                                                                                                                                                                                                                   1288
                                                                                                                                                                                                                                                                                                                                               1348
                                                                                                                                                                                                                                                                                                                                                                                                             1408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1648
                                                                                                                                                                                                                                                                                                                  179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 5
US-08-916-421B-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Application Patent No. 6503729 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent No. 6503729
TITLE OF INVENTION:
FILE REFERENCE: PB275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn version 3.1 SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Bult et a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/08/916,421B CURRENT FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: US 60/024,428 PRIOR FILING DATE: 1996-08-22
            OTHER INFO
                                                                                                                                           NAME/KEY: misc feature
LOCATION: (98343)..(98343)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                          OTHER INFORMATION: n equals NAME/KEY: misc feature LOCATION: (98239)..(98239)
                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (98120)..(98120)
OTHER_INFORMATION: n equals
                                      OTHER INFORMATION: n equals a, NAME/KEY: misc feature LOCATION: (163385)..(163385)
                                                                            NAME/KEY: misc_feature
LOCATION: (148948)..(148948)
                                                                                                                  NAME/KEY: misc_feature
LOCATION: (103998)..(103998)
                                                                                                                                                                                                  NAME/KEY: misc feature LOCATION: (98266)..(98266)
                                                                                                                                                                                                                               OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature
LOCATION: (98159)..(98159)
                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (84812)..(84812)
                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
LOCATION: (84808)..(84808)
                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc feature LOCATION: (84773)..(84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION: (28257)..(28258)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: n equals NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc feature LOCATION: (28222)..(28)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Methanococcus jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
                                                                                                                                                                                      OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ENGTH: 1664976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1059
                                                                                                    INFORMATION: n equals
                      INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300 GlyGlnAspHisCysGlnGluLeuPheArgThrLeuHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               280 GlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAla
                                    misc_feature
(163385)..(163385)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGGGGCGACGAGGAGACGTTCGCC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGGAACGGCTGTGCGCGCGCGGATGTTCACCGCCCTGCAC
         feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                    .. (84773)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (28222)
(191989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/08916421B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GCCCTGTTCGCCGAACTGCGCGGGGTGTGCTGGGCGAGCACGGCGCGGAG 988
                                                                                                        a
                                                                                                                                                                                       a,
                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                      a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genome
                        τ,
                                                               Ļ
                                                                                                                                                ŗ
                                                                                                                                                                                       Ļ
                                                                                                                                                                                                                               ζ,
                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                               ŗ
                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                      ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ,
                        ů
                                                               ú
                                                                                                                                                ú
                                                                                                                                                                                       Ç
                                                                                                                                                                                                                                                                        ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                      ó
                                                                                                         ō
                                                                                                                                                                                                                                ú
                                                                                                                                                                                                                                                                                                                                                       ú
                                                                                                                                                                                                                                                                                                                                                                                              ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ç
                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence of the Methanogenic Archaeon, Methanococ
                         or
                                                                                                                                                õ
                                                                or
                                                                                                         ö
                                                                                                                                                                                          õ
                                                                                                                                                                                                                                or
                                                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                       ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or
                        Q
                                                               Q
                                                                                                       ω
                                                                                                                                              g
                                                                                                                                                                                       ω
                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                              ω
                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                              ω
                                                                                                                                                                                                                                                                                                                                                                                                                                     ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1036
```

NAME/KEY: misc_feature LOCATION: (234814)...(234814) OTHER INFORMATION: n equals

a

ζ,

ç

OTHER INFORMATION: n equals NAME/KEY: misc_feature LOCATION: (234220)..(234220)

a,

Ĺ

ç

NAME/KEY: misc feature LOCATION: (234187)...(234187) OTHER INFORMATION: n equals LOCATION: (231980)..(231980) OTHER INFORMATION: n equals

þ

ŗ

ņ

9

ú

NAME/KEY: misc_feature LOCATION: (191995)..(191995) OTHER INFORMATION: n equals

a ,

ŗ

ú

OTHER INFORMATION: n equals

a,

ŗ

ú

NAME/KEY: misc feature LOCATION: (309398)..(309398) OTHER INFORMATION: n equals

```
ö
                                   ဓ္
                                                                       é
                                                                                                        ဝူ
                                                                                                                                          9
                                                                                                                                                                            9
                                                                                                                                                                                                               ဝူ
                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                           ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    မ္
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    မ္ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                  ω
                                                                   ú
                                                                                                      φ
                                                                                                                                         ω
                                                                                                                                                                            ω
                                                                                                                                                                                                                                                 u
                                                                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                    S
                                              밁
                                                                   Ś
                                                                                                               Ś
                                                                                                                                         밁
                                                                                                                                                              Ş
                                                                                                                                                                                        밁
                                                                                                                                                                                                             Ś
                                                                                          문
                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                   US-10-089-514-6 (1-322) x US-08-916-421B-1 (1-1664976)
                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                       Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                         US-08-916-421B-1
                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc feature
LOCATION: (1607912)..(1602912)
LOCATION: (1607912).. requals a, t
NAME/KEY: misc feature
LOCATION: (1603734)..(1603734)
                                                                                                                                                                                                                                                                                                                                                                OTHEK INCOMES (1664855)
NAME/KEY: misc_feature
LOCATION: (1664854)..(1664855)
LOCATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION: n equals a, NAME/KEY: misc_feature LOCATION: (1637998)..(1637998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc feature
LOCATION: (1470091)..(1470091)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc feature NAME/KEY: misc feature LOCATION: (1349473)..(1349473)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTHER INFORMATION: n equals a, NAME/KEY: misc_feature LOCATION: (1313224)..(1313224)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc feature
LOCATION: (1310988)..(1310988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION: (1119881)...(1119881)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc feature
LOCATION: (1349491)...(1349491)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (1096846)..(1096846)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: (1130881).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc
                                                                                                                                                                                       930033 ATTATTGGAGGAACTGATGGTTTAGGGAAGTGGTTTGCAAGATATTTAAAAAATAAAGGG
 929799
                                                                                            929913
                                                                                                                                         929973 TTTAACGTTATAGTTACTGGGAGAGATATTGAGAAAAGGAAAAAATGTTGAGAAAGAGTTA
                      89
                                                                                                                  49
                                                                                                                                                                 29
                                                                   69 LeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeuMet
                                                                                                                                                                                                     9 ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (1130881)..(1130881)
ORMATION: n equals a,
AGGGAAGGATGTTTATTAATGGACATAACCTCAATTAAAGAGATTCCTTCAAAAGCTATG 929740
                    ArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGlyMetAlaAlaGluLeu 108
                                             ATTGTAGCAGTTCCAATAAATGTTACAGAAAGGGTTATAAAAAGAGGTAGCTCCTCATGTT
                                                                                         666--
                                                                                                              GlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal
                                                                                                                                                              SerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1569020) . . (1569020)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1084830) .. (1084830)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   feature
                                                                                          -GTTGAATTTACTAACAACAACATTGAAGCTGCT---AAAAAAGGAGATATTGTT
                                                                                                                                                                                                                                                            9.71e-08
235.00
42.76%
23.36%
14.37%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    equals a,
                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ,,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ņ
                                                                                                                                                                                                                                                                                                                                                                                                     ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                        ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ņ
                                                                                                                                                                                                                                                                       Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ņ
                                                                                                                                                                                                                                                                                                         Length:
Matches:
                                                                                                                                                                                                                                                          Gaps:
                                                                                                                                                                                                                                                                                                                                                                   ٥ĸ
                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      å
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          œ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                       1664976
71
59
158
16
```

NAME/KEY: misc feature
LOCATION: (741684). (741684)
OTHER INFORMATION: n equals a,
NAME/KEY: misc feature
LOCATION: (779455). (779455)

gı,

ŗ

ņ

NAME/KEY: misc feature LOCATION: (855539)..(855539) OTHER INFORMATION: n equals

a,

Ĺ

ņ

KEY: misc_feature ION: (871619)..(871619) INFORMATION: n equals

ó

NAME/KEY: misc feature LOCATION: (779676)..(779676) OTHER INFORMATION: n equals LOCATION: (779455).. (779455)
OTHER INFORMATION: n equals

a,

Ĺ

ç

88

929800

83

929914

929860

48

929974 28

ā

ŗ

ů

NAME/KEY: misc_feature LOCATION: (682442) . (682442) OTHER INFORMATION: n equals a NAME/KEY: misc_feature LOCATION: (713652) . (711652)

a

ŗ

ņ

LOCATION: (713652). (713652) OTHER INFORMATION: n equals

a

ŗ

ç

LOCATION: (622708) . (622708) OTHER INFORMATION: n equals a. NAME/KEY: misc feature LOCATION: (657081) . (657081) OTHER INFORMATION: n equals a.

a,

ŗ

'n

NAME/KEY: misc feature LOCATION: (559241)..(559241) OTHER INFORMATION: n equals

LOCATION: (600992)...(600992) OTHER INFORMATION: n equals NAME/KEY: misc_feature

ā

ŗ

'n

VAME/KEY: misc

feature

a

ŗ

ú

NAME/KEY: misc_feature LOCATION: (559167)..(559167) OTHER INFORMATION: n equals LOCATION: (319226)..(319226) OTHER INFORMATION: n equals OTHER INFORMATION: n equals NAME/KEY: misc feature for the formation: (312993)...

a,

ŗ

ú

ð

<u>(</u>1

ú

NAME/KEY: misc

feature

LOCATION: (312837)..(312837)

feature

a '

ŗ

ņ

(312993)

a,

Ĺ

ņ

feature

LOCATION: (309418)..(309418)

feature

a,

ŗ

ç

(309418)

a

ņ

NAME/KEY: misc_feature LOCATION: (657203)..(657203) OTHER_INFORMATION: n equals

LOCATION: (674435)..(674435)
OTHER INFORMATION: n equals

a,

ŗ

ņ

NAME/KEY: misc

rearure

a,

ŗ

ú

a

ŗ

ņ

```
FILE REFERENCE: PB375C1

CURRENT APPLICATION NUMBER: US/09/692,570

CURRENT FILING DATE: 2003-01-14

PRIOR APPLICATION NUMBER: US 60/024,428

PRIOR FILING DATE: 1996-08-22

PRIOR APPLICATION NUMBER: US 08/916,421

PRIOR TILING DATE: 1997-08-22

NUMBER OP SEC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 6
US-09-692-570-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Bult et al.
TITLE OF INVENTION: Complete Genome
Patent No. 6797466
TITLE OF INVENTION: jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/09692570 Patent No. 6797466
                                                                                                                                                                                       SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 20 SOFTWARE: PatentIn version
                                                                                                                             TYPE: DNA ORGANISM: Methanococcus
                                                     NAME/KEY: misc_feature
LOCATION: (28222)..(28222)
OTHER INFORMATION: n equals
                      NAME/KEY: misc_feature
                                                                                                                  FEATURE:
                                                                                                                                                                    LENGTH: 1664976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       929199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            929439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  929499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         929619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              929679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAAGATGTGGCT 929128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGATAATGAAAGAAGCTGCAAAGCATTTTGGTAGTGAGGCCAAAGAGAGGGGGCTTATTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATAAATCAGTGTAAGGAAATCAGTGAAATTGTTAAAAATAAAGATAGAGAAGGTTTTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATTTATATGCTGACATCCAAATGTTTAATCCAAGGATAAAGGAGATTCATGAAACCTTT 929320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCCTCCCCAATATACGAGTTGATGTCTATCATTGGGAGGATTATAGGACAGAATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATATCTTTAGGAGCAACGTTAAAAGAACTCAACGTTGATATAAAAGAGTCAAGAAAGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGTGGTTTAACAAGGTTTATAATTTTTTAAAGAAAGAAGGGGGCTAAGGTTATAGTCATC 929560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCTCCAGAAAAACATGATAGAATTATGGGGATTGTTCAGGGTTTGACTCACTTCGCCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACACCTTCTTTGTTAAGACAAGTGGTTATCTTAACCCCTTCTGAAAAAGCATAAAAATACT 929620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaGlyMetThrGlyArgProValAlaAlaValValThr------ArgAspGly 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAlaHisAla---ProGlyValGlnHisValGlyLeuAsnProMetPheAlaProAla
                                                                                                                                                                                                       version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    298
                                                                                                                                 jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---AsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGly
                                                           'n,
                                                           ŗ
                                                           ņ
                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                           ဝူ
                                                         ω
                                                                                                                                                                                                                                                                                                                                                                                                    of the Methanogenic Archaeon,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         929200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   929500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     929140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              929260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          929380
                                                                                                                                                                                                                                                                                                                                                                                                      Methanoco
FEATURE:
NAME/KEY: misc feature
'``ATION: (309398)..(309398)
                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc feature LOCATION: (191989)..(191989) OTHER INFORMATION: n equals
                                                                        FEATURE: misc_feature
NAME/KEY: misc_feature
LOCATION: (234814)..(234814)
OTHER INFORMATION: n equals
                                                                                                                                              NAME/KEY: misc feature
LOCATION: (234220)..(234220)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: (234187)..(234187)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                       NAME/KEY: misc feature
LOCATION: (231980)...(231980)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (191995)...(191995)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (163385)...(163385)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (148948)..(148948)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc feature
LOCATION: (103998)..(103998)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (98266)..(98266)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc feature
LOCATION: (98159)..(98159)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc feature
LOCATION: (98120)..(98120)
OTHER INFORMATION: n equal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (84812)..(84812)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (84808)..(84808)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature LOCATION: (84773)..(84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION: (28257)..(28258)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION: (98343)..(98343)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (98239)..(98239)
                                                                                                                                                                                                                                                                            FEATURE
                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ..(84773)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              equals
                                                                                                                                                                                                                      a,
                                                                                                                                                                                                                                                                                            a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    а
,
                                                                         a
a
                                                                                                                                                a,
                                                                                                                                                                                                                                                                                                                                                                 a,
                                                                                                                                                                                                                                                                                                                                                                                                                                       a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
```

ŗ ŗ ŗ ŗ ŗ ŗ , , , ŗ 'n ţ ŗ Ļ ŗ ņ ç ņ 'n 'n ņ ņ ņ ú ú ú ņ ú ņ 'n ņ ç ņ 유 õ ç ç or õ õ or or or 8 8 유 or õ ဝူ 9 ö ç

```
NAME/KEY: misc feature
LOCATION: (779676)..(779676)
OTHER INFORMATION: n equals
                                                                                                                           FEATURE:
NAME/KEY: misc_feature
LOCATION: (779455)..(779455)
OTHER INFORMATION: n equals
                                                                                                                                                                          NAME/KEY: misc feature
LOCATION: (741684)..(741684)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (657081)..(657081)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (559167)..(559167)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (312837)...(312837)
OTHER INFORMATION: n equals
NAME/KEY: misc feature
LOCATION: (871619)..(871619)
OTHER INFORMATION: n equals
                                           NAME/KEY: misc feature
LOCATION: (855539)..(855539)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                   NAME/KEY: misc feature
LOCATION: (713652)...(713652)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (682442)..(682442)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
LOCATION: (674435)..(674435)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (657203)..(657203)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc feature
LOCATION: (622708)..(622708)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc feature
LOCATION: (559241)..(559241)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (319226)..(319226)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc feature
LOCATION: (312993)..(312993)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (309418)...(309418)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: (600992)..(600992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   equals
   Ω,
                                             a,
                                                                                                                                  ā
                                                                                                                                                                            a
                                                                                                                                                                                                                      a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                        ω
                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                             œ,
                                                                                                                                                                                                                                                                                                                                                        a,
                                                                                                                                                                                                                                                                                                                                                                                                 e e
                                                                                                                                                                                                                                                                                                                                                                                                                                            a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                 ŗ
                                                                                                                                                                           ,
                                             Ĺ
                                                                                       ŗ
                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ,
                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŗ
   ú
                                             õ
                                                                                       ú
                                                                                                                                 ç
                                                                                                                                                                           ū
                                                                                                                                                                                                                      Ó
                                                                                                                                                                                                                                                                  ú
                                                                                                                                                                                                                                                                                                             ņ
                                                                                                                                                                                                                                                                                                                                                        ú
                                                                                                                                                                                                                                                                                                                                                                                                 ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ū
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ū
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ç
    õ
                                              õ
                                                                                        or
                                                                                                                                  õ
                                                                                                                                                                            õ
                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                             or
                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                  or
                                                                                                                                                                                                                                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
   ω
                                            g
                                                                                       ω
                                                                                                                                 ω
                                                                                                                                                                           ω
                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ıα
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
```

```
Ś
                                              밁
                                                                      S
                                                                                                      밁
                                                                                                                                                            밁
                                                                                                                                                                                     5
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-089-514-6 (1-322) x US-09-692-570-1 (11664976)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature LOCATION: (1349473)..(1349473) OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc feature
LOCATION: (1313224)..(1313224)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc feature
LOCATION: (1310988)..(1310988)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE: misc_feature
NAME/KEY: misc_feature
LOCATION: (1119881)..(1119881)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc feature
LOCATION: (1130881)..(1130881)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PEATURE:
NAME/KE: misc feature
LOCATION: (1084830)...(1084830)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION: (1096846)..(1096846)
OTHER INFORMATION: n equals a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: (1096846)..(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                     929799
                                                                                                                                                                                                                                                                                                                                     929913
                                                                                                                                                                                                                                                                                                                                                                                               929973
                                                                                                                                                                                                                                                                                                                                                                                                                                                      930033
                  164
                                                                                                                                                                                          109
                                                                                                                                                                                                                                                89
                                                                                                                                                                                                                                                                                                         69
                                                                                                                                                                                                                                                                                                                                                                  49
                                                                                                                                                                                                                                                                                                                                                                                                                           29
ThralaGluGluHisAspargThrThralaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                    AlaAlaHisAla---ProGlyValGlnHisValGlyLeuAsnProMetPheAlaProAla
                                                                                                                                                                                                                                                                            ATTGTAGCAGTTCCAATAAATGTTACAGAAAGGGTTATAAAAGAGGTAGCTCCTCATGTT
                                                                                                                                                                                                                                                                                                                                    GGG---GTTGAATTTACTAACAACAACATTGAAGCTGCT---AAAAAAGGAGATATTGTT
                                                                                                                                                                                                                                                                                                                                                            GlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal
                                                                                                                                                                                                                                                                                                                                                                                             TTTAACGTTATAGTTACTGGGAGAGATATTGAGAAAAGGAAAAATGTTGAGAAAAGAGTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTATTGGAGGAACTGATGGTTTAGGGAAGTGGTTTGCAAGATATTTAAAAAAATAAAGG
                                              GAGTGGTTTAACAAGGTTTATAATTTTTTAAAGAAAGAAGGGGGCTAAGGTTATAGTCATC
                                                                                                                               AlaGlyMetThrGlyArgProValAlaAlaValThr------ArgAspGly
                                                                                                                                                            AGGGAAGGATGTTTATTAATGGACATAACCTCAATTAAAGAGATTCCTTCAAAAGCTATG
                                                                                                                                                                                                                                              ArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGlyMetAlaAlaGluLeu
                                                                                                                                                                                                                                                                                                      LeuLeuAlaValHisGluAspValAlaLeuLysalaValAlaProValThrArgLeuMet
                                                                                                                                                                                                                                                                                                                                                                                                                        SerArgThrLeuValValAspLeuValProProGlyArgProAspAlaCysLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAlaGly
                                                                     ProGlyValThrAlaLeuLeuArgLeuValĠluGlyGlyGlyGlyArgProValArgLeu
                                                                                                    ACACCTTCTTTGTTAÄGÄCAAĞTĞGTTATCTTAACCCCTTCTGAAAAGCATAAAAATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9.71e-08
235.00
42.76%
23.36%
14.37%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ÇT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ς,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matchés:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71
59
158
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1664976
                  183
                                                                         163
                                                                                                                                                                                        127
                                                                                                                                                                                                                                                                                                                                                                                                                          48
                                                                                                                                 143
                                                                                                                                                                                                                   929740
                                                                                                                                                                                                                                                                                                       88
                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                               929914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28
                                                                                                                                                             929680
                                                                                                                                                                                                                                                                            929800
                                                                                                                                                                                                                                                                                                                                                                                                                                                      929974
```

```
CURRENT APPLICATION NUMBER: US/09/489,039A
CURRENT FILING DATE: 2000-01-27
PRIOR APPLICATION NUMBER: US 60/117,747
PRIOR FILING DATE: 1999-01-29
NUMBER OF SEQ ID NOS: 14342
SEQ ID NO 4572
LENGTH: 1131
TYPE: DNA
ORGANISM: Klebsiella pneumoniae
US-09-489-039A-4572
       S
                                            В
                                                                            Ś
                                                                                                                  B
                                                                                                                                                   S
                                                                                                                                                                                       밁
                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               뭣
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                            US-10-089-514-6 (1-322) x US-09-489-039A-4572 (1-1131)
                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-489-039A-4572
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 4572, Application Patent No. 6610836 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Gary Breton et. al
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID
TITLE OF INVENTION: PNEUMONIAE FOR DIAGNOSTICS A
FILE REFERENCE: 2709.2004001
                                                                                                                                                                                                                                                                                                                Match:
                                            415
                                                                                                                   373
                                                                                                                                                                                         313
         83
                                                                              48
                                                                                                                                                     28
                                                                                                                                                                                                                            œ
                                                                                                                                                                                     GTGATCGTCGGCGGTGGGCAGATGGGCCGTCTGTTTGAGAAGATGTTAACGCTGTCCC
                                                                                                                                                GlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                       ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAGATGTGGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuSerPheGlyLeuAlaAeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
     ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                          ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                  GGCTACCAGGTGCGTATTCTGGAA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATAAATCAGTGTAAGGAAATCAGTGAAATTĞTTAAAAATAAAGATAGAGAGAGGTTTTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATTTATATGCTGACATCCAAATGTTTAATCCAAGGATAAAGGAGATTCATGAAACCTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCTCCCCAATATACGAGTTGATGATTTCTATCATTGGGAGGATTATAGGACAGAATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATATCTTTAGGAGCAACGTTAAAAGAACTCAACGTTGATATAAAAGAGTCAAGAAAGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCTCCAGAAAAACATGATAGAATTATGGGGATTGTTCAGGGTTTGACTCACTTCGCCTTT
                                                                                                                                                                                                                                                                                                           2.03e-11
227.00
45.80%
29.02%
13.88%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US/09489039A
                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCES RELATING AND THERAPEUTICS
                                                                                                                                                                                                                                                                                              1131
83
48
107
49
9
                                                                                                                ---AAAAACGATTGGGCCCGG
                                           -GATGCCGGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TO KLEBSIELLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    243
                                           444
                                                                            67
                                                                                                                                                   47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  294
       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               929140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    929200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         929260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       929380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             929440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 망
                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 8
US-09-557-884-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                   S-09-557-884-1
Sequence 1, Application US/0955/007
Patent No. 6506581
; GENERAL INFORMATION:
APPLICANT: Fleischmann et al.
; APPLICANT: Fleischmann et al.
; TITLE OF INVENTION: The Nucleotide sequence of the Haemophilus influenzae
COUNTRY: USA
ZIP: 20850
COMPUTER READABLE FORM:
MEDIUM TYPE: 3 1/2 inch diskette
COMPUTER: Dell Pentium
OPERATING SYSTEM: MS DOS v6.22
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/557,884
FILING DATE: 25-Apr-2000
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Sciences,
STREET: 9410 Key West Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1020 GGCGTTTATCGACAGCTT
                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                284 GlyValPheGlyGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     264 ProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGlyAsnLeuAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          244 AlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAla 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                224 GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             204 AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          790 TTCGCCTATGGCCTGCACCTGGCGGAAGAGAATGTACGTCTTGAGCAACTGCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        184 LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 164 ThralaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       147 ThrAla-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              616 GACAGCGGCAGCCTGGCGAAGCAGGTG-----GTGGTCTATTGTGATGGCCGCCAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          127 AlaAlaGlyMetThrGlyArgProValAlaAlaValThrArgAspGlyProGlyVal 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107 GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        505 --- CCGGCGGATTGCATTCTGGTTGACCTTGCCTCGGTGAAAGCGGAGCCGCTGCAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |||::::::::::|||
445 GTTATCGTCAGCGTACCGATTCACACCACCGTGGAGAGCGATCGGCAGGCTGCCGCCCCTT
                                                                                                                                                                                                      STATE: MD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----CGAAGCGATCGGCCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGCTGTACGCCGATATTATTATGTCATCGGA-AAACAACCTGGCGCTGATTAAGCGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCGTCACCCATTTACCGACTGGAGCTGGCGATGGTAGGCCGTCTGTTTGCCCATGATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCGCCGTTGAGCACGATCAGAACATGGCCTTTATTCAGGCGCTGCGCCACTTTGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGCTGGCGGCGCATCAGGGCCCGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr----GlyMetAlaAla
                                                                                                                                                                                                                        CITY: Rockville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----CTTGGCCTGCACCCGATGTTCGGTCCG
                                                                                                                                                                                                                                                                                                                                 Rd Genome, Fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAGCAGGGCGATAAGCA 1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     615
```

```
Ś
                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                     Ś
                                                                                 뭉
                                                                                                                    á
                                                                                                                                                            밁
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-089-514-6 (1-322) x US-09-557-884-1 (1-1830121)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 1830121 base pairs
TYPE: nucleic acid
STRANDEDNESS; double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    No . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1370841 CGCGAAGATTGGGCGGTGGCTGAAAGTATT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1370799 CGTTATTTACGTGCATCTGGCTATCCAATTTCTATTTTAGAT-------
  1371285
                                                                                                                                                            1371165 ATTTATCAAACCAATGCCACAGAACACGATCATAATATGACTTATATACAAGCCTTGCGC 1371224
                                                                                                                                                                                                                                           1371105
                                                                                                                                                                                                                                                                                                                      1371045 CATCCAATGTTTGGTGCAGATATTGCAAGTATGGCAAAACAAGTGGTTGTGAGTTGTGAT 1371104
                                                                                                                                                                                                                                                                                                                                                                                                       1370991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1370931 GAACGCTTAAAACCTTATTTAACGGAAAACATGCTACTTGCAGATTTAACCTCTGTTAAG 1370990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1370871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1370739 TCTGATATTCACAAAATTGTTATTGTGGGCGGTTATGGTAAATTAGGCGGCTTATTTGCC 1370798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 08/476,102
FILING DATE: JUN-5-1995
ATTORNEY/AGENT INFORMATION:
NAME: Michelle S. Marks
REGISTRATION NUMBER: 41,971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE DESCRIPTION: SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION: TELEPHONE: 301-309-8504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                                                             101
                                                                                                                                                                                                                                                                              140 ThrargaspGlyProGlyValThralaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22 GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProFroGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 SerGlyPheProArgSerValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                                                                                                                                                                         GGACGTTTTCCTGAACGTTATGAATGGTTACTTGAGCAAATTCAAATTTGGGGTGCAAAA 1371164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTAGCGAATGCTGATGTCGTGATCGTTTCCGTCCCTATTAATCTCACCTTAGAAACAATT 1370930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaVal
                                     LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                  HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                               ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr
                                                                                                                                                                                                                                                                                                                                                 AsnProMetPhe---AlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal 139
                                                                                                                                                                                                                                                                                                                                                                                                     CGTGAACCGCTAGCGAAAATGCTTGAAGTTCATACTGGTGCTGTT-----TTAGGTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAla 61
TTATTGGCACTTTCTTCCCCTATTTATCGGTTAGRACTTGCGATGATAGGTCGTTTATTT 1371344
                                                                             CATTTTTCGACTTTTGCGAATGGTTTACACCTTTCCAAACAGCCCCATTAATCTCGCTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: 301-309-8439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.9e-06
216.00
45.26%
28.10%
13.21%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PB186P3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  118
32
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1830121
                                                                                                                                                                                                                                                                              159
                                       219
                                                                                                                    199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                             1371284
                                                                                                                                                                                                   179
                                                                                                                                                                                                                                                                                                                                                                                                     1371044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1370870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1370840
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                             Fred.
                                                                                             Alignment Scores:
                                                                                                                                   US-09-643-990A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-643-990A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1, Application US/09643990A Patent No. 6528289 GENERAL INFORMATION:
                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 1830121 base
                                                                           Мо.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1371345 GCGCAAGATGCAGAGCTTTACGCAGATATTATTATGGATAAGTCAGAAAATTTAGCGGTA 1371404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER: 40,302
REFERENCE/DOCKET NUMBER: PB
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: Dell Pentium
OPERATING SYSTEM: MS DOS V6.22
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1995-04-21 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Sciences,
                                                                                                                                                   SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Robert D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 256 AspaspProaspargAlaaspAlaProGlyArgAlaaspAla 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    220 GlyGlySerProGluValTyrGlyAspIle÷----GlnArgSerAsnProArgAlaAla 237
                                                                                                                                                                    TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
                                                                                                                                                                                                                                                                               TELEPHONE: 301-610-5790
TELEFAX: 310-309-8439
                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 08/487,429
FILING DATE: 1995-06-07
APPLICATION NUMBER: 08/426,787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/09/643,990A FILING DATE: 23-Aug-2000 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: 9410 Key West Avenue CITY: Rockville,
                                                                                                                                                                                                                                                                                                                                                                          NAME: Kenley K. Hoover
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: MD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE: 3 1/2 inch diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ZIP: 20850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mark ...
Owen White
Hamilton O. Smith
J. Craig Venter
OF INVENTION: The Nucleotide sequence of
the Haemophilus influenzae Rd
Thereof, and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --SerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----GAAAATAATGATCGTCAAGGTTTTATTGATGCT 1371482
5.9e-06
216.00
45.26%
28.10%
13.21%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fleischmann
Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                         PB186P1C1
47
118
32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rd Genome, Fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1371449
```

US-10-089-514-6 (1-322)

x US-09-643-990A-1 (1-1830121)

```
TITLE OF INVENTION: NUCLEIC ACID AND AMINO AC
TITLE OF INVENTION: DIAGNOSTICS AND THERAPEU
FILE REFERENCE: 2709.1002-001
CURRENT APPLICATION NUMBER: US/09/543,681A
CURRENT FILING DATE: 2000-04-05
PRIOR APPLICATION NUMBER: US 60/128,706
PRIOR APPLICATION NUMBER: US 60/128,706
PRIOR FILING DATE: 1999-04-09
NUMBER OF SEQ ID NOS: 8344
SEQ ID NO 1138
                                                                                                                                                                                                                                                                                                                 US-09-543-681A-1138
                                                                                                                                                                                                                                                                                                                                       RESULT 10
                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: GARY BRETON
                                                                                                                                                                                                                                                                       Sequence 1138, Application Patent No. 6605709
                                                                                                                                                                                                                                                                                                                                                                             1371450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1371345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1371165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1371105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1370991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1370931 GAACGCTTAAAACCTTATTTAACGGAAAACATGCTACTTGCAGATTTAACCTCTGTTAAG 1370990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1370871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1370841 CGCGAAGATTGGGCGGTGGCTGAAAGTATT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1370799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1370739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101
                                                                                                                                                                                                                                                                                                                                                                                                                     256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyGlySerProGluValTyrGlyAspIle-----GlnArgSerAsnProArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGTTATTTACGTGCATCTGGCTATCCAATTTCTATTTTAGAT-----
                                                                                                                                                                                                                                                                                                                                                                          -----GAAAATAATGATCGTCAAGGTTTTATTGATGCT 1371482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCAAGATGCAGAGCTTTACGCAGATATTATTATGGATAAGTCAGAAAATTTAGCGGTA 137140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATTTTCGACTTTTGCGAATGGTTTACACCTTTCCAAACAGCCCATTAATCTCGCTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTTATCAAACCAATGCCACAGAACACGATCATAATATGACTTATATACAAGCCTTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGACGTTTTCCTGAACGTTATGAATGGTTACTTGAGCAAATTCAAATTTGGGGTGCAAAA 1371164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATCCAATGTTTGGTGCAGATATTGCAAGTATGGCAAAACAAGTGGTTGTGCGTTGTGAT 1371104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AsnProMetPhe---AlaProAlaAlaGlyMetThrGlyArgProvalAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTGAACCGCTAGCGAAAATGCTTGAAGTTCATACTGGTGCTGTT-----TTAGGTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTAGCGAATGCTGATGTCGTGATCGTTCCGTCCCTATTAATCTCACCTTAGAAACAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspAspProAspArgAlaAspAlaProGlyArgAlaAspAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----SerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTATTGGCACTTTCTTCCCCCTATTTATCGGTTAGRACTTGCGATGATAGGTCGTTTATTT 1371344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAla
                                                                                                                                                                                                                                                                                          US/09543681A
                                                                                                                                                                                       AMINO ACID SEQUENCES RELATING THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                   269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ö
                                                                                                                                                                                                            PROTEUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1371044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      41
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1371449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1371284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1370930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1370870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1370840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1370798
                                                                                                                                                                                                            MIRABII
                                                                                                                                                                                         뮹
                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                        US-09-902-540-5637
                                                                                                                                               RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-089-514-6 (1-322) x US-09-543-681A-1138 (1-1125)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-543-681A-1138
                                                           Sequence 5637, Application Patent No. 6833447 GENERAL INFORMATION:
    APPLICANT: Goldman,
APPLICANT: Hinkle,
APPLICANT: Slater,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Proteus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          970 TCATTAGGTGAAGCTATAGCCTTATTA 996
                                                                                                                                                                                                                                                                                                                                                     850
                                                                                                                                                                                                                                                                                                                                                                                                                                      790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          166 GluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSer 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                556 ATGTTAAAAGCACATAATGGCCCTGTT-----TTAGGACTACATCCAATGTTTGGTCCA
                                                                                                                                                                                                                           246 AlaLeuArgSerPheAlaAlaLeuVal 254
                                                                                                                                                                                                                                                                                                                                                                                           206 ProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerProGluVal 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           186 PheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      730 CAAGAGCACGATAAAAATATGAGTTTTATCCAAGCATTGCGACATTTTACTACTTTTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        146 ValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeuThrAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  610 GATGTGCCAAGTTTAGCAAAACAAGTTATCGCTTATTGTGAAGGGCGAGATTTATCACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      107 GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            388 GCGGATGAGTGGCAAAGTAAATCTCCCGGCTATTTTTGCG-----GATGCTGGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            364 GGCTATCAAGTG-----GAAAGTCTTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68 ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48 ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      88 MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly---MetAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28 GlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTTGAGTGGTTGCTTGAGCAACTTATGGTGTGGGGAGCAAGAGTAGAGGCTATTACTGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGATAATCAGTGTCCCAATCCATTTAACGGTTGATGTTATTGAGCAATTACCGCCCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGGGCAACATTTGGTGAAAGAGAATGTCGATTTAGCCAGTTTATTAAGATTATCTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaAlaGlyMetThrGlyArgProValAlaAlaValValThr---ArgAspGlyProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGAA----AATTGTTTATTGGTAGATTTAGCCTCAATCAAGCAAGCGCCTTTAGAGGCG
                                                                                                                                                                                                                                                                     TATGCCGATATTATTTTATCTTCACAAGAAAACATTAACTTGATCCGTAGATATCATCAT
                                                                                                                                                                                                                                                                                                             TyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAlaLeuAlaGlu
                                                                                                                                                                                                                                                                                                                                                     CCCATCTATCGTTTAGAGCTAGCGATGATTGGTAGGCTCTTTGCTCAAGATCCACAATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mirabilis
    Barry S.
Gregory Steven C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.71e-09
200.00
46.18%
26.51%
12.23%
US/09902540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1125
66
49
114
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        106
                                                                                                                                                                                                                                                                                                               245
                                                                                                                                                                                                                                                                                                                                                                                                                                      849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47
                                                                                                                                                                                                                                                                                                                                                     909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              438
```

В ş 밁 Ş 밁 Ś 밁 S B Ş 밁 Ś 밁 Ş 밁 Ş 밁 Ś 밁 ş 밁 á 밁 Ś 밁 Ś 밁 Ś

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 გ
                                                                                                                                            á
                                                                                                                                                                                       밁
                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; ORGANISM: Myxococcus
US-09-902-540-5637
                                   밁
                                                                        S
                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-6 (1-322) x US-09-902-540-5637 (1-1038)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 16825
SEQ ID NO 5637
LENGTH: 1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Genome Sequences and Uses Thereof
FILE REFERENCE: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                   337
                                                                                                                                                                                                                                                                                                                                                                                                                                                    123 MetPheAlaProAlaAlaGlyMetThrGlyArgProValAla-----AlaValVal 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               104 MetAlaAlaGluLeuAlaAla---HisAlaProGlyValGlnHisValGlyLeuAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        118
 238
                                                                                                                                                                                                                                                                 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              157
                                                                                                                                                  198 gAlaLeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7 SerValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGlu
                                                                                                                                                                                                                          uThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValAr 198
                                                                                                                                                                                                                                                                                                yArgProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLe
                                                                                                                                                                                                                                                                                                                                                                          ThrargaspGlyPro---Gly-ValThralaLeuLeuArgLeuValGluGlyGlyGlyGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaGlySerArgThrLeuValValAspLeuValProProProGlyArg------Pro
                                                                                                                                                                                                                                                                                                                                         GAACGAACTGCACCCAGAGGCCGTGCGCAAGGCCCGGGTCCTGTTCGAACGCATCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGCGCGGGGCTGGTGCTCTCCATGCCCGTGTCTGGAATGCGCTCGGTCCTGGAGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArg
rAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspPr
                                                                                                                                                                                                                                                                                                                                                                                                                 CTGTTCGGCCCGGCCAGTCT-GGCGAGGGGCGACCTGCCTCGCCGCACGGTGGTGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTCGCCCGCGCTGTCGCCCGCGCAGACGGTGCTCGACGTCGGAAGCGTCAAGGTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGGGC------ATCCCGCATCGGGTGTTCGAGCCGCGCCAGGATGACGTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCATCGCGCTGCTGCGGTACGGCCGCTTTGGCCGTGCCCTGTTGGCCTCCTGCTGGTG
                                     ACGGCTGGAGGTGCCCCATCTCTTCGGCGTCGTGCAGTCGGAGAATCCCTACGCGCGGGA
                                                                      lLeuGlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSe
                                                                                                               -----CCCTTCGCGCCCGCCCAGCTTCCAGCCCGTGGCTCGCCTGGAGGAGTACGC
                                                                                                                                                                                         -TTCTTCCTGGCCCACGGTTGCTCAAGGCGGAGGCCGGAAAGGACCTG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.64e-06
166.50
41.22%
29.05%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           xanthus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -- CTGAGGGCACCGACGCTCGCGGAGAGTGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1038
86
36
144
31
                                                                                                                                                                                                                                                                                                      178
                                                                                                                                                                                                                                                                                                                                         455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Goldman, Barry S.
APPLICANT: Glater, Steven C.
APPLICANT: Blater, Steven C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Genome Se
FILE REFERENCE: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
NUMBER OF SEQ ID NOS: 16825
                                                                  밁
                                                                                                       á
                                                                                                                                                   밁
                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-902-540-1269/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-6 (1-322) x US-09-902-540-1269 (1-49225)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-902-540-1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1269, Application Patent No. 6833447 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 1269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Myxococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 49225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Νο
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41609 GCGGGC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41669 AGCATCGCGCTGCTGGGGTACGGCCGCTTTGGCCGTGCCTGTCTGGCCTCCTGCTGGTG 41610
                                                                  41342 CTGTTCGGCCCGGCCAGTCT-GGCGAGGGGCGACCTGCCTCGCCGCACGGTGGTGCCCC
                                                                                                                                                                                                                                                                                                                       41522 GGCGCGGGGCTGGTGGTGCTCTCCATGCCCGTGTCTGGAATGCGCTCGGTCCTGGAGGAG
140 ThrArgAspGlyPro---Gly-ValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              678 CGCACGCGTGCGGCTGCTGGAGGCCCTCACGCAGCTCCAC-----CTGGGCTGTGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            786 TCGGGAGTGCGTGGATGCGTTGGACCGTGAGCTGGTTCAACTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         278 yAlaGlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMet 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      258 OASPArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                     44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27
                                                                                                                                                                                                                                                                                                                                                                 64 AspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaPro
                                                                                                                                                                                                                                                                             84 ValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly 103
                                                                                                                                                      MetAlaAlaGluLeuAlaAla---HisAlaProGlyValGlnHisValGlyLeuAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                             GACGCA------CTGAGGGCACCGACGCTCGCGGAGAGTGTCGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGGGCGCTCGGGCGCGGAGCCTGTCGCCGCGCGCG-----CCCCGGGCTGACGGAAGT 785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaGlySerArgThrLeuValValAspLeuValProProProGlyArg-------
                                                                                                       MetPheAlaProAlaAlaGlyMetThrGlyArgProValAla------AlaValVal 139
                                                                                                                                                                                                                                     CTTCGCCCGCGCTGTCGCCCGCGCAGACGGTGCTCGACGTCGGAAGCGTCAAGGTGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ServalvalvalGlyGlySerGlyAlavalGlyGlyMetPheAlaGlyLeuLeuArgGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.00121
166.50
41.22%
29.05%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US/09902540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----ATCCCGCATCGGGTGTTCGAGCCGCGCCAGGATGACGTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            831
                                                                  41284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41562
```

```
ફ
                                            В
                                                                     Ś
                                                                                                                              Ş
                                                                                                                                                                                        Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                   뭥
                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: FRASER, Claire M.
APPLICANT: VENTER, John C.
ITITLE OF INVENTION: DNA SEQUENCES FOR STRAIN
ITITLE OF INVENTION: TUBERCULOSIS
FILE REFERENCE: 24366-20007.00
CURRENT APPLICATION NUMBER: US/09/103,840A
CURRENT FILING DATE: 1998-06-24
NUMBER OF SEQ ID NOS: 2
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 13
US-09-103-840A-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                          US-10-089-514-6 (1-322) x US-09-103-840A-1 (1-4411529)
                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                   Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 1, Application US/09103840A Patent No. 6294328 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: FLEISCHMAN, Robert APPLICANT: WHITE, Owen R.
                                                                                                                                                                                                                                                                                                                   ORGANISM: Mycobacterium tuberculosis OTHER INFORMATION: H37Rv
                                                                                                                                                                                                                                                                                                                                               LENGTH: 4411529
TYPE: DNA
                                            3936106
                                                                                                   3936166 GCCGGTGCCGATCCCGCCGTCGCCGGGAACACCGGCGGCCGAATCCGGCGTTGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25
                                                                       22
                                                                                                                     2 SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gAlaLeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgVa
ArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGlyArgProAsp
                                           GGCCCCGCCGATGCCGCCTTGGCCGCCGTCACCGCCTTGGCCGCCGGCGCCGCCCTCGCT 3936047
                                                                          Gly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCGGGAGTGCGTGGATGCGTTGGACCGTGAGCTGGTTCAACTCCTG 40848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             oAspArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGCACGCGTGCGGCTGCTGGAGGCCCTCACGCAGCTCCAC----CTGGGCTGTGATTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspPr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   uThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              yAlaGlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMet 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACGGCTGGAGGTGCCCCATCTCTTCGGCGTCGTGCAGTCGGAGAATCCCTACGCGCGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CACC-----TTCTTCCTGGCCCACGGGTTGCTCAAGGCGGAGGCCGGAAAGGACCTG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            yArgProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAACGAACTGCACCCAGAGGCCGTGCGCAAGGCCCCGGGTCCTGTTCGAACGCATCGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     lLeuGlyGlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSe
                                                                                                                                                                                                   1.18
163.50
35.76%
30.61%
10.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   - CCCTTCGCGCCGCCCAGCTTCCAGCCCGTGGCTCGCCTGGAGGAGTACGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     U
                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                        Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN ANALYSIS
                                                                                                                                                                                      4411529
101
17
157
55
14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCCGGGCTGACGGAAGT 40894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MYCOBACTERIUM
                                                                       LeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                258
                                                                                                   3936107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    40948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          41112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41224
                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                      RESULT 14
US-09-724-797-31
                                                                                                                                                                                                                                뮹
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3935728
                                                                                                                                                                                                                                                                                                                                               3935395
                                                                                                                                                                                                                                                                                                                                                                                                                                                              3935515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3935575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3935632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3935668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3935830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3935884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3935989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            81
```

```
Sequence 31, Application US/09724797
Patent No. 6733998
GENERAL INFORMATION:
APPLICANT: Jon S. THORSON
TITLE OF INVENTION: MICROMONOSPORA ECHINOSPORA GENES
TITLE OF INVENTION: ENCODING FOR BIOSYNTHESIS OF
TITLE OF INVENTION: CALICHEAMICIN AND SELF-RESISTANCE
FILE REFERENCE: 2653-40
CURRENT APPLICATION NUMBER: US/09/724,797
CURRENT FILING DATE: 2000-11-28
CURRENT FILING DATE: 2000-11-28
                            PRIOR APPLICATION NUMBER: 60/111,325 PRIOR FILING DATE: 1998-12-07
NUMBER OF SEQ ID NOS: 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3935275 GCCGCTGTCGCCGGCCCGCCGTCGCCGCC 3935246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3935782 GCCGGTCCC-----GCCGGTGCCGCCGGACCCGCCGATAAAGCCGTCGCCGTCGCCGCC 3935729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3935944 CCCGCCTTGGCCGCCTTGGCCGCGAAGCCGTTGCCGTCTTGGGAGAGGGCGCCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180 HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100 ValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGly 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       45 AlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CysAsp------GlyAlaGlyAsnLeuAspGlyValPheGlyGluLeu 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaSerAlaArgArgAlaLeuAla---GluAlaLeuArgSerPheAlaAlaLeuValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---GCCGTGGCCGCCGCACCACCTTGGCCGCCGTCAATGCTGGGGTCCCCGTCGGCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCGCCGGCCCGCCGTCGCCGCCGCCGCCGCCGCCCC-----GCCGATACCGGCGTT 3935831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ArgArgLeuMetGlyProGluLeuAlaAla 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCGACCCCGCCTTGGCCGCCTTGGCCGCCGAAGCCGTTGCCGTCTTGGGAAGAGGGC 3935276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCGCCGGCGGCGCCCCGGCCGGCCGGTGCCGGATCCCGCCGTCGCCGGGAACACC 3935516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTGCCGCCGGCCCGGCCCCGCCGTTGCCGCCGTCACCGCTGGCGGCGCTGGCTAG 3935669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCCGCGGTTCCGCCGGTGTTGGCCAGGCCGCCGACGCC------GGCGTCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AspAspProAspArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGGCCGCCGGCCCCCCCCCCCCCCCCCCCCCTCTCGTTCCGTTCTGGCCGTCACCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCGCCGAATCCGGCGTTGCCGCCGGCCGGCCGATGCCGCCCTTGGCCGCCGTCACCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyGlySerProGluValTyr-----GlyAspIleGlnArgSerAsnProArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCC-----GGTGCTGTTCAGGCCGCCTTTGCCGCCTTGGCC 3935633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValAla---ProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaAspLeuValLeuAlaValHisGluAspValAlaLeu-----LysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCC-----GCCGGCCCCGTTGATGCCGCCGGCGCGCGCGTTGCCGCC----
                                                                                                                                                                                                                                           THERETO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GA
C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3935456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3935885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3935396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3935576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3935945
```

898

313

850

298

796

268 755

284

```
; NAME/KEY: CDS
; LOCATION: (1)...(1362)
US-09-724-797-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-6 (1-322) x US-09-724-797-31 (1-1362)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
ORGANISM: Bacteria
                                                                                                                                                                                                                                                                                                                                                                                                                                                   131 ThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyValThrAlaLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     148 GACCTGCGGGCCGGCTGCCGGCTGCCCGAGCCCGGCCTGGCCGGCGCCGTCCGGGAC
                                                                                                                                                                     AlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr-AlaProProProHisGlnVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAsp
nArgSerAsnPro-----ArgAlaAlaSerAlaArgArgAlaLeuAlaGluAlaLeuAr 248
                                                                                                                                                                                                                                                                                                              CCGGTGGTGGGTGCGGC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyValGlnHig-----ValGlyLeuAsnProMetPheAlaProAlaAlaGlyMet 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGTCGACGGTCTCCCCGGGCACCACCCGGACCCTCGTCGCCGCCCCTGCTGGAGAGCGGC 447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrLeuSerValArgThrGlyMetAlaAlaGluLeuAlaAla------HisAlaPro 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCGTCGCGGCGTGCGAGCAGATCGCCCCGGCGCTGCGCGCCGGGCAACTGGTGATCCTC 387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaValAlaProValThrArgLeu-----MetArgProGlyAlaLeuLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGGTGATCGTGACGGTCGGCACCCCGACCGACGCCACGAGATGGTCACCGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuValLeuLeuAlaVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTCGCCGCGACCGGACGGCTGACGGCGAGCACGTCGTACGACCCCGGTCGGCGCGGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGlyArgProAsp 44
                                                                                                                                                                                                                                                                    ThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAlaLeu
                                                                                                                                                                                                                                                                                                                                                        ArgLeuValGluGlyGlyGlyArgProValArgLeuThrAlaGluGluHisAspArg
                                                                                                                                                                                                                                                                                                                                                                                                         GAGGGGGTGCCCTGGCGCAGGTGCGGACG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGGCTGGTGCACGAGCGCGACTTCGGGCTG-----GCCTTCTGCCCCGGAGCGGCTCGCC 501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCGGCCGCGGCCGAGGTGGTCGCGGTCGAC----AGCGACCCGGGCACCGTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGCTGAAGGTGGTCATCGCCGGCGCCGGCTACGTCGGCACCTGTCTCGCCGTCACCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeu
                                                                                   lLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerProGluValTyrGlyAspIleGl
                                                                                                                                                                                                                        AGCGCCGCCGCCGAACGGTTCTGGCGGTCCGCG---
                                                                                                                                  CTCGGCGTCGACGTCGGCAGGTGCCGTCGGCCGAGGTCGCCGAGGTGGTCA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.000234
150.50
35.03%
27.01%
9.20%
                                            - AGCTCGCGACCAACTGGTGGATCGACGCGAACGT - - GGCGATCGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ------HisGluAspValAlaLeuLys 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1362
101
30
136
108
                                                                                                                                                                                                                                                                                                                -----ccgcgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----AlaAsp 66
                                                                                                                                                                            210
                                                                                                                                                                                                                                                                    190
                                                                                                                                                                                                                                                                                                                564
                                                                                                                                                                                                                                                                                                                                                          170
                                                                                                                                                                                                                                                                                                                                                                                                       534
                                                                                                                                                                                                                                                                                                                                                                                                                                                   150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     207
                                            697
                                                                                        230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Eisenhaber, Frank
APPLICANT: Rea, Stephen
TITIE OF INVENTION: Chromatin-Regulator Genes
FILE REFERENCE: 0652.1670001
CURRENT APPLICATION NUMBER: US/09/589,892B
CURRENT FILING DATE: 2000-06-09
PRIOR APPLICATION NUMBER: US 08/945,988
PRIOR FILING DATE: 1997-11-10
PRIOR APPLICATION NUMBER: PCT/EP96/01818
PRIOR FILING DATE: 1997-05-02
PRIOR FILING DATE: 1996-05-02
PRIOR PRIOR FILING DATE: 1996-05-01
PRIOR FILING DATE: 1995-05-10
NUMBER OF SEQ ID NOS: 21
NUMBER OF SEQ ID NOS: 21
                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭉
  밁
                                                                                        US-10-089-514-6 (1-322) x US-09-589-892B-3 (1-2732)
                                                                                                                                                                            Best Local Similarity:
                                                                                                                                                                                                                          score:
                                                                                                                                                                                                                                                                                                              US-09-589-892B-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-589-892B-3/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                       Query Match:
                                                                                                                                                                                                   Percent Similarity:
                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn version 3.2 SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 3, Application US/09589892B Patent No. 6689583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Jenuwein, Thomas
APPLICANT: Laible, Gotz
APPLICANT: O'Carroll, Donal
APPLICANT: Eisenhaber, Frank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 2732
TYPE: DNA
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                     NAME/KEY: 3'UTR
LOCATION: (1284)..(2732)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: 5'UTR
LOCATION: (1)..(44)
                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: CDS
LOCATION: (45)..(1283)
                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
                                                                                                                                                                                                                                                  Мо
..
  899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           851 CGTGGCGGGACGG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               268 pAlaProGlyHisProGlyGlyCys-----AspGlyAlaGlyAsnLeuAspGl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               248 gSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaProGlyArgAlaAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              698 ACGAACTCGCCCGGTACTGCGCGGTGCTGGGGGTGGACGTCCTCGACGTGATCGGCGC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          959 TGGTCAAGCTGGGACGGGATCGGAACGACGACGATCGC
                                9 ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 yValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAla----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGCCCGCGCGTCAACGACGACATGCCCCCGCCACACCGCCGCCGTCATCGCCGACGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----AlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeuHisArg------
                                                                                                                                                    0.000844
149.00
44.96%
31.78%
9.11%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --ThrAspAspGluGlyGluLysAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        - ĠĠĊĠŖĄĊĄĊĊĊŢĠĊĊĊŖĄĠĠĠĊŖĠĊŖĠĊŖŢĠĠŢĠŖĄĊĊŢĠĊ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----CCGGGACCGGGGCGTGCCCCTGCGCACGGTCGAGA
                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                  2732
82
34
97
45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    322
```

밁

328

97

388

448 114 8 뭥 á 밁 δ 밁 Ś 밁 Ś 밁

80

268

67

208

\$ 94 25 34 S

Ś 밁 ঠ 밁 S 맑 ঠ 밁 Ś 밁 δ 문 გ 밁 á

230

28

601 191 535 151 502 Ś

Alignment Scores:

М ..

FEATURE:

LENGTH: 1362

410 GGC	213 Ala:	193 Leu 458 CTT	173 Ala 512 AGG	157 Gly	140 Thr: ::: 617 AGT	127 677 CAC	107 Glu: 737 GTC	89 Arg	69 Leu:	49 Gly	29 Ser
GGCCTTCTGCACCAGGTAGTTGGCCAAGCTTGGGTCCAGGTGCCGGGGGGTCTTTG SerAsnProArgAlaAlaSerAlaArgArgAlaLeuAlaGluAlaLeuArg 248	euLeuAlaA	31yValAspV :::::: 3GCATTGAGC'	AlaThrGlnA	31yArgProv	ArgAspGlyP: 3GGTGCCCAC	AlaAlaG TGGCCCTGG	SeuAlaAlaH ::: xragccgcag	ProG	euAlaValH GCTGTTC	\spValThrA	\rgThrLeuV CCCTGACGG
AGGTAGTTGG	AlaLeuLeuAlaArgValLeuGlyGlySerProGluValTyrGlyAspIle-GlnAr	LeuGlyValAspValArgAlaLeuAlaAlaThrAlaProProProHisGlnValLeuLeu	AlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArg	GlyGlyArgProValArgLeuThrAlaGluGluHisAsgArgThrThr	ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGly 156 :::	AraAlaGlyMetThrGlyArgProValAlaAlaValVal	GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro :::	ArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGlyMetAlaAla	LeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeuMet	GlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal	SerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeuVal GGCGCCCTGACGGTCGTAGATCTGGCCCCGCCGCTCTGCCTCCTC
CCAAGCTTGG laArgArgAl :::::	yGlySer	uAlaAlaThr CCCAGCGACG	sAlaValLeu ::: CCTCATTCTC	r CAACACGGTA	rAlaLeuLeu GGCACTCGCA	y CAAACTTGTG	yValGlnHis AGTTGCACTC	uAlaAspThr :::: aTCGGATACC	lAlaLeuLys : TCTCCAGGGT	oGluLeuAla ::: ::: TGATCTCTCC	uValProPro GGCCCCGCCG
GTCCAGGTG	ProGluVal	AlaProPro GAGCGCCCG	LeuSerPhe TACAGTGAT	AlaGlu ::: CTCATTGAT	GCCCACAGC	Arg	ValGlyLeu GTAGATGGG	LeuSerVal	AlavalAla	AlaAlaLeu CACGTACTC	ProGlyArg
cccsssscr uAlaLeuAr 	TyrGlyAsp 	ProHisGln	GlyLeuAla GCGTCCCAG	GluHisAsp ::: GTACACGAA	ArgLeuVal	ProValAla	AsnProMet	ArgThrGly	ProvalThr	ArgAspAla CATGACGAA	ProAspAla
CTTTGACCG	Ile-GlnAr	ValLeuLeu CTGCTT	LeuAlaArg ::: ATGGCTGCG	ArgThrThr	GluGlyGly GAGGGTGAT	Alavalval	PheAlaPro TCGAAGCCG	MetAlaAla ::: ATTTGGGCA	ArgLeuMet ::::: CCCATCATC	AspLeuVal	CysLeuVal
351	231	212	192 459	172 513	156 558	139	126 678	106 738	795	68 849	48 885

Search completed: October 5, 2005, 23:14:28 Job time: 7529.22 secs

음 성

```
-Q-(gn2 1/USPTO, Spool h /US10089514/runat 04102005 105745 8055/app query.fasta_1.1621
-Q-(gn2 1/USPTO, Spool h /US10089514/runat 04102005 105745 8055/app query.fasta_1.1621
-DB=Published Applications NA -QFMT=fastap -SUFFIX=rnpb -MINMATCH=0.1
-LOOPCL=0 -LOOPEXT=0 -UNITS-bits -STARR=1 - END=-1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DOCALIGN=200 -THR SCORE=pot -THR MAX=100
-THR_MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFMT=pto -NORM=ext -HEAPSTZE=500 -MINLEN=0
-MAXLEN=2000000000 -USER=US10089514 @CCN 1 1 920 @runat 04102005 105745 8055
-NCPU=6 -ICPU=3 -NO_MMAP -LARGSQUERY -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -
-LONGLOG -DEV_TIMEOUT=120 -MARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5
-FGAPENT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Command line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MODEL=frame+
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     p2n.model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xgapop 10.0 , y
Ygapop 10.0 , y
Fgapop 6.0 , F
Delop 6.0 , F
Published_Applications_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         October 5, 2005, 09:57:48 ; Search time 708.632 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7442561 seqs, 3452328358 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-089-514-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MSGFPRSVVVGGSGAVGGMF.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
               / Cgn2_6/ptodata/1/pubpna/USO8_EUB_PUB_Seq:*
/ Cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/USO9A_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/USO9A_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/USO9_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/USO9_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/USO9_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/USO0_PUBCOMB.seq:*
/ Cgn2_6/ptodata/1/pubpna/USO0_NEW PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*
Cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*
Cgn2_6/ptodata/1/pubpna/US06_NEW_PUB.seq:*
Cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -DEV=xlh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6/ptodata/1/pubpna/US07_NEW_PUB.seq:*
6/ptodata/1/pubpna/US07_NEW_PUB.seq:*
6/ptodata/1/pubpna/PUB.NEW_PUB.seq:*
6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7.05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (without alignments)
3137.453 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .HCQELFRTLHRTDDEGEKDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14885122
```

Pred. ŏ. 8 the number of results predicted by chance to have

Substance PF1022 Derivatives, Methods Novel Biosynthesis Genes

fo

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

RESUL' US-10 US-10 ; Sudd ; Pubd ; GEN AP ; AP ; AP ; AP ; TITI ; TITI ; FII ; PRI ; PRI ; PRI		α	000000		0 0 0	Resul No
SULT 1 -10-472-1 Sequence Publicat: GENERAL APPLICAL APPL		44422	337	20 20 20 20 20 20 20 20 20 20 20 20 20 2	12 2 4 4 8 6 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	No.
		146 145 145 145 145 145 145 143.5	4444444	150.5 150.5 150.5 150.5 150 149 149 148 148 147.5 147.5	л 55 - 3	Score 1635
plica . US: ATIOI NAI, UMID; ORIV; O						% Query Match
Oder		100000444	212 228 232 232 245 248 248 252 264	,	0 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Length
US/104725 214274A1 mi Manabu teuki Tekeshi Takeshi ansformant Troducing T 302A/WMC/0 302A/WMC/0 MBER: US/1 2003-09-22 ER: 82227/		15 16 22 10 21	152 22 22 22 22 22 22 22 22 22	2226888888888		¦ 6
2587 Its Producing Substa The Same And Novel (00144 (10/472,587	US-10-945-050-193 US-09-827-688-8 US-09-827-688-8 US-10-485-710-7 ALIGNMENTS ALIGNMENTS 2587 2587	-10-156-761 -10-200-962 -10-237-951 -10-945-050 -09-827-688 -09-827-688	10-499- 10-499- 10-499- 10-499- 10-499- 10-499- 10-499-	US-10-156-761 US-10-762-107 US-10-156:76 US-10-485-710 US-10-485-710 US-10-90-310 US-10-911-160 US-10-911-160 US-10-437-963 US-10-437-963	US-10-126-927-68 US-10-126-927-67 US-10-136-927-67 US-10-137-310-3 US-10-137-310-3 US-10-137-310-1 US-10-634-548-16 US-10-433-556-20 US-10-433-556-20 US-10-158-865-1 US-10-997-455A-1 US-10-997-455A-1 US-10-369-493-376 US-10-369-493-376 US-10-375-039-13 US-10-375-039-13 US-10-375-039-13	ID US-10-472-587-5
nce PF1022 Derivatives, Met Biosynthesis Genes		quence 15103 quence 193, quence 193, quence 193, quence 8, App quence 8, App quence 8, App quence 7, App	422222443	e 1868, ce 1, Ag ce 4, Ag e 2, Ag e 27, Ag e 21, Ag e 21, Ag e 21, Ag e 21, Ag e 21, Ag	e e e e e e e e e e e e e e e e e e e	Description Sequence 5, Appli

```
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
Query Match:
DB:
              Ś
                                 В
                                                    Ś
                                                                        밁
                                                                                      Ś
                                                                                                         В
                                                                                                                            S
                                                                                                                                                   밁
                                                                                                                                                               Ś
                                                                                                                                                                                     멍
                                                                                                                                                                                                       ş
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-089-514-6 (1-322) x US-10-472-587-5 (1-969)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 2001-03-22
NUMBER OF SEQ ID NOS: 40
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 5
LENGTH: 969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: CDS
LOCATION: (1)..(966)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA
ORGANISM: Streptomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                    661
                                                     221
                                                                         601
                                                                                          201
                                                                                                             541
                                                                                                                                181
                                                                                                                                                   481
                                                                                                                                                                   161
                                                                                                                                                                                        421
                                                                                                                                                                                                         141
                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                    101
                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                           181
721
                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                  41
                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                                                                                                                                       21
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1
                                  ValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal
                                                                                                                                                                                                                                                                                                                                                                               ArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArg
                                                                       GCGGCGACGGCACCGCCCCACCAGGTGCTCGCCCTCCTGGCCCGTGTGCTCGGC
                                                                                                                                                  GTACGGCTCACGGCGGAGGAGCACGACGGACGGCGGCCACCCAGGCCCTGACGCAC
                                                                                                                                                            ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis
                                                                                                                                                                                                 ArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgPro
                                                                                                                                                                                                                                      AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr
                                                                                                                                                                                                                                                                                                                                                     AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                   GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                               AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro
CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTCGGCGACGACCGGACCGGT
                                                                                   AlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGly
                                                                                                                                                                                                                                                                                                       GCCCTCCGGGACGCGGACCTCGTCCTGCTCGCCGTACACGAGGACGTGGCCCTCAAGGCC
                                                                                                                                                                                                                            AACCCGATGTTCGCCCCCCCCCCCCGCCATGACCGGCCGACCCGTGGCCGCCCTGGTCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.65e-158
1635.00
100.00%
100.00%
100.00%
20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                   180
                                                                                                                                                                                       480
                                                                                                                                                                                                         160
                                                                                                                                                                                                                                             140
                                                                                                                                                                                                                                                                 360
                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                         100
                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                  60
                                  720
                                                     240
                                                                        660
                                                                                          220
                                                                                                             600
                                                                                                                                                   540
                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                      40
                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
```

```
TITLE OF INVENTION: IN VIVO Incorporation of FILE REFERENCE: 54-000120US
CURRENT APPLICATION NUMBER: US/10/126,927
CURRENT FILLING DATE: 2002-04-19
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR FILLING DATE: 2001-04-19
PRIOR FILLING DATE: 2001-04-19
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR FILLING DATE: 2002-02-06
NUMBER OF SEQ ID NOS: 79
SOFTWARE: Patentin version 3.1
SEQ ID NO 68
LENGTH: 3305
TYPE: DNA
ORGANISM: Streptomyces venezuelae
US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 68, Application US/10126927
Publication No. US20030082575A1
GENERAL INFORMATION:
APPLICANT: The Scripps Research Instit
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Maderson, John C
APPLICANT: Chin, Jason
APPLICANT: Liu, David R
APPLICANT: Magliery, Thomas
APPLICANT: Magliery, Thomas
APPLICANT: Medi, Ryan A
APPLICANT: Pastrnak, Miro
APPLICANT: Pastrnak, Miro
APPLICANT: Sancoro, Stephen W
APPLICANT: Zhang, Zhiwen
                                                               Ş
                                                                                                             밁
                                                                                                                                          Ş
                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                  밁
                                                                                                                                                                                     망
                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                          US-10-089-514-6 (1-322) x US-10-126-927-68 (1-3305)
                                                                                                                                                                                                                                                                                                    DB:
                                                                                                                                                                                                                                                                                                                    Query Match:
                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-126-927-68
                                                                                                                                                                                                                                                                                                                                                                                               No.:
                                                                                                                                                                                       2007 ATGAGCGGCTTCCCCCGGAGCGTCGTCGTCGGCGGCAGCGGAGCGGTGGGCGGCATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        961 GACCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                901 CAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACCGACGACGAAGGCGAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            281 AsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeuAlaAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            781 GCCGACGCCCCGGGCGCCGACGCCCCCGGCCATCCCCGGGGGATGCGACGGCGCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  261 AlaAspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGly
                                                                       41
61 AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla
                                                                                                                                 21 AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro
                                                                                                                                                                                                        1 MetSerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPhe
                                                         GlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAla
                                                                                                             GCCGGGCTGCTGCGGGAGGCGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Asparg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThrAspAspGluGlyGluLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AACCTCGACGGCGTCTTCGGGGAACTCCGCCGGCTCATGGGACCGGGAGCTCGCGGCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        966
                                                                                                                                                                                                                                                                                                 4.64e-153
1588.00
96.65%
96.04%
97.13%
                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of Unnatural
                                                                                                                                                                                                                                                                                                 3305
315
2
5
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Amino
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Acide
                                                                                                             2126
                                                                                                                                                                                       2066
 80
                                                                         60
                                                                                                                                                  40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              840
                                                                                                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     900
```

```
US-10-126-927-67

US-10-126-927-67

Sequence 67, Application US/10126927

Publication No. US20030082575A1

GENERAL INFORMATION:
APPLICANT: The Scripps Research Institute
APPLICANT: Schultz, Peter G
APPLICANT: Wang, Lei
APPLICANT: Wang, Lei
APPLICANT: Anderson, John C
APPLICANT: Liu, David R
APPLICANT: Liu, David R
APPLICANT: Meggliery, Thomas
APPLICANT: Meggliery, Thomas
APPLICANT: Megers, Eric L
APPLICANT: Mestrak, Miro
APPLICANT: Santoro, Stephen W
APPLICANT: Santoro, Stephen W
APPLICANT: Zhang, Zhiwen
TITLE OF INVENTION: In Vivo Incorporation of
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                        ક
                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                       2907
                                                                                                                                                                                                                                                                                                                                                        2847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2187
                                                                                                                                                                                                                                                                                                                                                                                                           2787
                                                                                                                                                                                                                                                                                                                                                                                                                                                            2727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2247
ANT: Chin, Jason
ANT: Liu, David R
ANT: Magliery, Thomas
ANT: Meggers, Eric L
ANT: Mehl, Ryan A
ANT: Pastrnak, Miro
ANT: Santoro, Stephen W
ANT: Shang, Zhiwen
OF INVENTION: In Vivo Incorporation of
                                                                                                                                                                                                                                                                             315
                                                                                                                                                                                                                                                                                                                               295
                                                                                                                                                                                                                                                                                                                                                                                 275
                                                                                                                                                                                                                                                                                                                                                                                                                                    257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18
                                                                                                                                                                                                                                                   AspAspGluGlyGluLysAspArg
                                                                                                                                                                                                                                                                                                                    ProGluLeuAlaAlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThr
                                                                                                                                                                                                                                                                                                                                                        GGATGCGACGGCGCGGGAACCTCGACGGCGTCTTCGAGGAACTCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                     GlyCysAspGlyAlaGlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGly
                                                                                                                                                                                                                                                                                                                                                                                                          GCCGAGGACCCGCGCCGACGACCCCGACCGACAACCCCGGCCATCCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGTCCGCGGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGGCGACGGCACCGCCCCACCAGGTGCTCGCCCTCCTGGCCCGTGTGTTCTCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGGAGCTCGCGGCGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACC 2966
                                                                                                                                                                                                                                                                                                                                                                                                                          -----AspProAspArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGGCGCTCGCCGAGGCCCTGCGCTCCTTCGCCGCGCTGATCGGCGACCACGGACCCGGACCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAsp----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTACGGCTCACGGCGGAGGAGCACGACGGACGACGCGACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGCGCCCGTGACCCGGCTCATGCGACCGGGCGCGCTGCTCGCCGACACCCTGTCCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .ySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg
                                                                                                                                                                                                                                                     2990
                                                                                                                                                                                                                                                                            322
        of Unnatural Amino
        Acids
                                                                                                                                                                                                                                                                                                                               314
                                                                                                                                                                                                                                                                                                                                                        2906
                                                                                                                                                                                                                                                                                                                                                                                                        2846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity:
Query Match:
DB:
                  밁
                                    Ş
                                                                  밁
                                                                                    Ş
                                                                                                              밁
                                                                                                                                         Ş
                                                                                                                                                                        밁
                                                                                                                                                                                         δ
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; LENGTH: 12391
; TYPE: DNA
; ORGANISM: Plasmid
US-10-126-927-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 79
SOFTWARE: PatentIn versionsEQ ID NO 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE REFERENCE: 54-000120US
CURRENT APPLICATION NUMBER: US/10/126,927,
CURRENT FILING DATE: 2002-04-19
PRIOR APPLICATION NUMBER: US 60/285,030
PRIOR FILING DATE: 2001-04-19
PRIOR APPLICATION NUMBER: US 60/355,514
PRIOR APPLICATION DATE: 2002-02-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.:
                    3021
                                                                                                                                                                                                                           2781
                                                                                                                                                                                                                                                                            2721
                                                                                                                                                                                                                                                                                                                                                                                2601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2361
                                                                                                                                              181
                                                                                                                                                                                                161
                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                     101
                                                                                                                                                                                                                                                                                                                                                                                                        81
                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21
                                                                                                                                                                        GTACGGCTCACGGCGGAGGAGCACGACGGCGGACGACGCGGCGACCCAGGCCCTGACGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaLeuArgAspAlaAspLeuValLeuLeuÁlaValHisGluAspValAlaLeuLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGACGGCCGGACGCCTGCCTGGTGGGCGACGTCACCGCGCCCGGGGCCCGAGCTCGCGGCC
                  GGCAGCCCCGAGGTGTACGGGGACATCCAGCGGTCCAACCCCCGGGCGCGCGTCCGCGCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pSC101,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2:12e-152
1588.00
96.65%
96.04%
97.13%
```

```
Streptomycese venezuelae papABC
```

US-10-089-514-6 (1-322) x US-10-126-927-67 (1-12391) Length:
Matches:
Conservative:
Mismatches:
Indels: 19000

GlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAla GCCGGGCTGCTGCGGGAGGCGGGCAGCCGCACGCTCGTCGACCTCGTACCGCCGCCG AlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProPro ATGAGTGGCTTCCCCCGGAGCGTCGTCGTCGGCGGCAGCGGAGCGGTGGGCGGCATGTTC MetSerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPhe 2480 2420 2540 60 40 20

ValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal GTGGCGCCGTGACCCGGCTCATGCGACCGGGCGCGCTGCTCGCCGACACCCCTGTCCGTC 100 2600 2660

80

GlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg AlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGly GCCGTGATCCTCTCCGTTCGGGCTCGCCCTCGCCCTCGGCGTCGACGTCCGGGCCCTG AlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeu 3020 2960 240 2900 220 200

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                   Ś
                                                                                          밁
                                                                                                                                     á
                                                                                                                                                                                            밁
                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-089-514-6 (1-322) x US-10-137-310-3 (1-1122)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 4
US-10-137-310-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-137-310-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 12
SOFTWARE: Patentin version 3.0
SEQ ID NO 3
LENGTH: 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3, Application US/10137310 Publication No. US20030176675A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Valentin, Henry E.
APPLICANT: Witsky, Timothy A.
TITLE OF INVENTION: TyrA Genes and Uses Thereof
FILE REFERENCE: 16515.147
CURRENT APPLICATION NUMBER: US/10/137,310
CURRENT FILING DATE: 2002-05-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: US 60/289,527
PRIOR FILING DATE: 2001-05-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA ORGANISM: Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3141 GCCGAGGACCCGGACCGCGACGACCCGACCGACCGACCAACCCCGGCCATCCCGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8 ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla | | | | ::: | | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | | ::: | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | | ::: | | ::: | | | ::: | | ::: | ::: | | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | :: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | ::: | :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   275
                                   107
                                                                                                                                                                                               436
                                                                                                                                                                                                                                                                                                    406
                                                                                                                                                                                                                                                                                                                                                                                                            364
                                                                                                                                                                                                                                           68 ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                        28 GlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                                                   48 ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
  GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProGluLeuAlaAlaGlyGlnAspHisCysGlnGluLeuPheArgThrLeuHisArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGATGCGACGGCGCGGGAACCTCGACGGCGTCTTCGAGGAACTCCGCCGGCTCATGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyCysAspGlyAlaGlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGAAA----GATTGTATTCTGGTTGATCTGGCATCAGTGAAAAATGGACCATTACAGGCC
                                                                                                                                     MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly---MetAlaAla
                                                                                                                                                                                                                                                                                                    GCGGCTGATATTGTTGCC-----
                                                                                                                                                                                                                                                                                                                                                                                                            GGTTATCAGGTGCGGATTCTGGAG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GACGACGAAGGCGAGAAGGACCGA 3344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspAspGluGlyGluLysAspArg 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----AspProAspArgAlaAspAlaProGlyArgAlaAspAlaProGlyHisProGly
                                                                                                                                                                                         GTGATTGTTAGTGTGCCAATCCACGTTACTGAGCAAGTTATTGGCAAATTACCGCCTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGGAGCTCGCGGGGGCCAGGACCACTGCCAGGAGCTGTTCCGCACCCTCCACCGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.32e-14
237.00
45.39%
27.66%
14.50%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                            ------CAACATGACTGGGATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1122
78
50
110
                                                                                                                                                                                                                                                                                                 GATGCCGGAATG
                                                                                                                                     106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3200
                                                                                    552
                                                                                                                                                                                         495
                                                                                                                                                                                                                                             87
                                                                                                                                                                                                                                                                                                 435
                                                                                                                                                                                                                                                                                                                                                     67
                                                                                                                                                                                                                                                                                                                                                                                                            405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     274
                              S
                                                                                                                                                                                                                                                                                                                                             ; NAME/KEY: CDS
; LOCATION: (1)..(1122)
US-10-433-556-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 5
US-10-433-556-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                               US-10-089-514-6 (1-322) x US-10-433-556-18 (1-1122)
                                                                                                                                                              Query Match:
                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/10/433,556
CURRENT FILING DATE: 2003-06-04
NUMBER OF SEQ ID NOS: 30
SOFTWARE: PatentIn version 3.2
SEQ ID NO 18
LENGTH: 1122
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 18, Application US/10433556 Publication No. US20040117872A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Matringe, Michel
APPLICANT: Rippert, Pascal
TITLE OF INVENTION: Novel Targets For
TITLE OF INVENTION: Said Herbicides
FILE REFERENCE: 5500*120
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1081 AGCCGC 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                265 GlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245 GluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              961 TATAAGCGTTTCGGCGAGGCGATTGAGTTGCTGGAGCAGGGCGATAAGCAGGCGTTTATT 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      901 CAGCTTTATGCCGACATTATTATGTCGTCAGAGCGTAATCTGGCGTTAATCAAACGTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             204 AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               184 LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       164 ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       147 ThrAla-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     607 GACAGCGGTAGCCTGGCAAAGCAAGTT-----GTGGTCTGGTGATGGACGTAAAACCG
                              æ
ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAAGCATACCAATGGTTTCTGGAGCAAATTCAGGTCTGGGGCGCTCGGTTGCATCGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTGCTTACGGGCTGCACCTGGCAGAAGAAAATGTTCAGCTTGAGCAACTTCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCTTCGCCGATTTACCGCCTTGAGCTGGCGATGGTCGGCGAGCTGTTCGCTCAGGATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCGCCGTCGAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyVal 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGCTGGCGGCGCACGATGGCCCGGTA-----CTGGGGTTACACCCAATGTTCGGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  266
                                                                                                                                   3.4e-14
233.00
45.04%
27.30%
14.25%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Targets For Herbicides And Transgenic Plants Resistant
                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                   1122
77
50
111
44
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -ArgArgAlaLeuAla
```

То

960

239 900 223 840 203 183 720 163 660

780

```
Sequence 7, Application US/10380132

Publication No. US20030182679A1

GENERAL INFORMATION:
APPLICANT: SUNGENE GmbH & Co. KGaA

TITLE OF INVENTION: Improved processes for vitamin E b

FILE REFERENCE: NAE445/2000

CURRENT APPLICATION NUMBER: US/10/380,132

CURRENT FILING DATE: 2003-03-11

NUMBER OF SEQ ID NOS: 44

SOFTWARE: Patentin Ver. 2.1

SEQ ID NO 7

LENGTH: 1238

TYPE: DNA
                                                                                                                                                                                                                                                                 US-10-380-132-7
                                                                                                                                                                                                                                                                                                                                                                                                          1021
                                                                                                                                                                                                                                                                                                                             1081 AGCCGC 1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         48
                                                                                                                                                                                                                                                                                                                                                                  GlyArg
                                                                                                                                                                                                                                                                                                                                                                                                          GACAGTTTCCGCAAGGTGGAGCACTGGTTCGGCGATTACGCACAGCGTTTTCAGAGTGAA 1080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGCTTTATGCCGACATCATTATGTCGTCAGAGCGTAATCTGGCGTTAATCAAACGTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTTCGCCGATTTACCGCCTTGAGCTGGCGATGGTCGGGCGACTGTTTGCTCAGGATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITGCTTACGGGCTGCACCTGGCAGAAGAAAATGTTCAGCTTGAGCAACTTCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu :::||| | |||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAGCATACCAATGGTTTCTGGAGCAAATTCAGGTCTGGGGCGCTCGGCTGCATCGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaAlaGlyMetThrGlyArgProValAlaAlaValThrArgAspGlyProGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ĠTĠATTGTTAGTĠTĠCCAATCCACĠŤŤACTGAGCAAGTTATTGGCAAATTACCGCCTŤŤ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                             GluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATAAGCGTTTCGGCGAGGCGATTGAGTTGCTGGAGCAGGGCGATAAGCAGGCGTTTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Thrala-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACAGCGGTAGCCTGGCAAAGCAAGTT-----GTGGTCTGGTGTGATGGACGTAAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGCTGGTGGCGCATGATGGTCCGGTG-----CTGGGGCTACACCCGATGTTCGGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGAAA----GATTGTATTCTGGTCGATCTGGCATCAGTGAAAAATGGGCCATTACAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCGGCTGATATTGTTGCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTTATCAGGTGCGGATTCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGCGCCGTCGAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTATCGTCGGCGGTGGCGGTCAGATGGGACGCCTGTTCGAGAAGATGCTGACCCTCTCG
                                                                                                                                                                                                                                                                                                                                                                  266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----ArgArgAlaLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----GATGCCGGAATG
                                                                                                                                                                 E biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 - CAACATGACTGGGATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                       S
                                                                                                   밁
                                                                                                                                S
                                                                                                                                                                              밁
                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                          ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-6 (1-322) x US-10-380-132-7 (1:1238)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-380-132-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: (1233)..(1238)
OTHER INFORMATION: restriction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
NAME/KEY: CDS
LOCATION: (25)..(1143)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: gene
LOCATION: (7)..(1232)
OTHER INFORMATION: tyrA gene coding for bifunctional
OTHER INFORMATION: mutase / prephenate dehydrogenase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: restriction site linker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature LOCATION: (1)..(6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No.:
                                                                204 AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                              577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       œ
                          TCTTCGCCGATTTACCGCCTTGAGCTGGCGATGGTCGGGCGACTGTTTGCTCAGGATCCG
                                                                                                                                    LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                    AGCGCCGTCGAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACT
                                                                                                                                                                                                           ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                               GAAGCATACCAATGGTTTCTGGAGCAAATTCAGGTCTGGGGCGCTCGGCTGCATCGTATT
                                                                                                                                                                                                                                                                                                    Thrala-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                             GACAGCGGTAGCCTGGCAAAGCAAGTT-----
                                                                                                                                                                                                                                                                                                                                                                               AlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyVal 146
                                                                                                                                                                                                                                                                                                                                                                                                                        ATGCTGGTGGCGCATGATGGTCCGGTG-------CTGGGGCTACACCCGATGTTCGGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValValValGlyGlySerGlyAlaValGlyĠlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCGAAA----GATTGTATTCTGGTCGATCTGGCATCAGTGAAAAAATGGGCCATTACAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly---MetAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGATTGTTAGTGTGCCAATCCACGTTACTGAGCAAGTTATTGGCAAATTACCGCCTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGCTGATATTGTTGCC-----
                                                                                                       TTTGCTTACGGGCTGCACCTGGCAGAAGAAAATGTTCAGCTTGAGCAACTTCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.81e-14
233.00
45.04%
27.30%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                               -GTGGTCTGGTGTGATGGACGTAAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1238
77
50
111
44
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 chorismate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGCCGGAATG
```

RESULT 밁 S 밁 8 밁 S 밁 5 밁 Ś 밁 र् 밁 Ş 밁 Ś 밁 ঠ 밁 ঠ 문 ş 밁 5 밁 S 밁 S 밁

964

223

183

163

744

684

126

630

106

519

576

87

67

459

47

223 84 C 203 780 183

720 163

```
Sequence 1, Application US/10137310

Publication No. US20030176675A1

GENERAL INFORMATION:

APPLICANT: Valentin, Henry E.

APPLICANT: Mitsky, Timothy A.

TITLE OF INVENTION: TyrA Genes and Uses Thereof

FILE REFERENCE: 16515.147

CURRENT APPLICATION NUMBER: US/10/137,310

CURRENT FILING DATE: 2002-05-03

PRIOR APPLICATION NUMBER: US 60/289,527

PRIOR FILING DATE: 2001-05-09

NUMBER OF SEQ ID NOS: 12

SOFTWARE: Patentin version 3.0

SEQ ID NO 1

LENGTH: 1122
                                                                                                 Ş
                                                                                                                                       밁
                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-089-514-6 (1-322)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-137-310-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-137-310-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
ORGANISM: Erwinia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1105 AGCCGC 1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1045 GACAGTTTCCGCAAGGTGGAGCACTGGTTCGGCGATTACGCACAGCGTTTTCAGAGTGAA 1104
                                                                                                                                         496
                           127
                                                            553 ATGCTGGCTGCCCATAACGGGCCTGTA----CTGGGTCTGCATCCGATGTTTGGCCCG
                                                                                                  107
                                                                                                                                                                                                                                                                                           388
                                                                                                                                                                                                                                                                                                                                                                 364 GGCTACACGGTTAAAACGCTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                      304 GTGATTGTCGGTGGTAAGGGCCAGATGGGCCGGCTGTTTGAAAAAATGCTCGGGCTATCA
                                                                                                                                                                                                             436 GTGATCATTAGCGTGCCGATTCACCTGACCGAGCAGGTGATTGCCCAACTGCCACCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          265 GlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    985 TATAAGCGTTTCGGCGAGGCGATTGAGTTGCTGGAGCAGGGCGATAAGCAGGCGTTTATT
                                                                                                                                                                      88 MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr---GlyMetAlaAla
                                                                                                                                                                                                                                              68 ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                28 GlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                        48 ValGlyAspValThrAlaProGlyProGluLeuAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8 ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
 GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                     CCGGAA----GATTGTATTCTGGTCGATCTGGCGTCAGTCAAAAACCGGCCTCTGCAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGCTTTATGCCGACATCATTATGTCGTCAGAGCGTAATCTGGCGTTAATCAAACGTTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            herbicola
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.01e-13
225.50
48.26%
30.43%
13.79%
                                                                                                                                                                                                                                                                                       ---AAAGAGGACTGGCCTCAGGCTGAGACTCTGCTCAGCGATGCCGGAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                x US-10-137-310-1 (1-1122)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1122
70
41
94
25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----ArgArgAlaLeuAla 244
                                                                                                                                     552
                                                                                                                                                                                                             495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1044
                                                            606
                                                                                                                                                                                                                                                                                       435
                                  S
                                                                           밁
                                                                                                              á
                                                                                                                                                       문
                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                             US-10-089-514-6 (1-322) x US-10-634-548-16 (1-1122)
                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Erwinia
US-10-634-548-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 8
US-10-634-548-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                       Query Match:
                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 16
LENGTH: 1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 16, Application US/10634548 Publication No. US20040045051A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Valentin, Henry E.
APPLICANT: Venkatesh, Tyamagondlu V.
TITLE OF INVENTION: Tocopherol biosynthesis related genes and used thereof
FILE REFERENCE: Ren-01-125
CURRENT APPLICATION NUMBER: US/10/634,548
CURRENT FILING DATE: 2003-08-05
PRIOR APPLICATION NUMBER: us 60/400,689
PRIOR PILING DATE: 2002-08-05
PRIOR FILING DATE: 2002-08-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn version 3.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: No. US20040045051Alris,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                               No.:
   388
                                                                             364
                                                                                                                                                       304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    901 CAACTCTATGCGGATATCATCATGTCTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       224 GluValTyrGlyAspIleGlnArgSerAsn 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               204 AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781 TTCGCTTATGGTCTGCATTTAGCCGAAGAGAACGTCAATCTGGATCAGCTGCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              164 ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661 GAAGCGTATCAGTGGTTCCTGGAGCAGATTCAGGTCTGGGGGTGCGCGTCTGCATCGTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      147 ThrAla-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               607 GACAGCGGCAGCCTGGCAAAACAGGTG-----GTGGTCTGGTGTGATGGAAGACAACCG
                                  48 ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu 67
                                                                                                              28 GlySerArgThrLeuValValAspLeuValProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                        8 ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla 27
                                                                                                                                                   GTGATTGTCGGTGGTAAGGGCCAGATGGGCCGGCTGTTTGAAAAAATGCTCGGGCTATCA
------AAAGAGGACTGGCCTCAGGCTGAGACTCTGCTCAGCGATGCCGGAATG
                                                                           GGCTACACGGTTAAAACGCTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCGCTGTTGAGCATGACCAGAACATGGCATTCATTCAGGCGCTGCGTCACTTTGCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hartsuyker, Karen Kindle
Hirshberg, Joseph
Karunanandaa, Balasuloji
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eilers, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Moshiri, Farhad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Abad, Mark Scott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Stein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lincoln, Kim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Joshua C
                                                                                                                                                                                                                                                                                                                                                                                                                                      herbicola
                                                                                                                                                                                                                                                                2.01e-13
225.50
48.26%
30.43%
13.79%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Balasulojini
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Susan
                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                  1122
70
41
94
25
```

```
; ORGANISM: Erwinia l
; FEATURE;
; NAME/KEY: CDS
; LOCATION: (1)..(11)
US-10-433-556-20
                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 9
US-10-433-556-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
   밁
                           र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                 US-10-089-514-6 (1-322)
                                                                                                                                                                   Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: 5500*120
CURRENT APPLICATION NUMBER: US/10/433,556
CURRENT FILING DATE: 2003-06-04
NUMBER OF SEQ ID NOS: 30
SOFTWARE: PatentIn version 3.2
SEQ ID NO 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 20, Application US/10433556 Publication No. US20040117872A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Matringe, Michel
APPLICANT: Rippert, Pascal
TITLE OF INVENTION: Novel Targets For Herbicides
TITLE OF INVENTION: Said Herbicides
                                                                                                                                                                                                                                                                                                            TYPE: DNA
                                                                                                                                                                                 Х
О.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        436
   304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                 œ
 CAACTCTATGCGGATATCATCATGTCTTCA 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluValTyrGlyAspIleGlnArgSerAsn 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaProProPisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAAGCGTATCAGTGGTTCCTGGAGCAGATTCAGGTCTGGGGTGCGCGTCTGCATCGTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACAGCGGCAGCCTGGCAAAACAGGTG-----GTGGTCTGGTGTGATGGAAGACAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyVal 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGAA----GATTGTATTCTGGTCGATCTGGCGTCAGTCAAAAACCGGCCTCTGCAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTGATCATTAGCGTGCCGATTCACCTGACCGAGCAGGTGATTGCCCAACTGCCACCACTG
                            ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCGCTTATGGTCTGCATTTAGCCGAAGAGAACGTCAATCTGGATCAGCTGCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ThrAla-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr----GlyMetAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCGCTGTTGAGCATGACCAGAACATGGCATTCATTCAGGCGCTGCGTCACTTTGCTACC
                                                                                                                                                                                                                                              (1119)
                                                                                                                                                                                                                                                                                               herbicola
                                                                                                2.07e-13
225.50
42.72%
28.15%
13.79%
                                                                x US-10-433-556-20 (1-1152)
                                                                                                                                             Length:
Matches:
Conservative:
                                                                                                               Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -CTGGGTCTGCATCCGATGTTTGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                          And Transgenic Plants Resistant
                                                                                              1152
85
44
119
55
                                 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     606
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                             RESULT 10
US-10-329-670-1
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                             Sequence 1, Application US/10329670
Publication No. US20040018503A1
GENERAL INFORMATION:
APPLICANT: Fleischmann et al.
TITLE OF INVENTION: Nucleotide Sequence of the Haemophilus influenzae Rd Genome,
TITLE OF INVENTION: Thereof, and Uses Thereof
FILE REFERENCE: PB186P1
CURRENT APPLICATION NUMBER: US/10/329,670 CURRENT FILING DATE: 2002-12-24 PRIOR APPLICATION NUMBER: US 09/643,990
                                                                                                                                                                                                              1140 GGATGC 1145
                                                                                                                                                                                                                                                                                                                                           1020 CGCCAGCTTTAACCGGGTTGAACAGTGGTTTGGCGATCACGCAAAACGCTTCCTGGTCGA
                                                                                                                                                                                                                                            275 Glycys 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661 GAAGCGTATCAGTGGTTCCTGGAGCAGATTCAGGTCTGGGGTGCGCGTCTGCATCGTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        224 GluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                164 ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       607 GACAGCGGCAGCCTGGCAAAACAGGTG-----GTGGTCTGGTGTGATGGAAGACAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  127 AlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     496 CCGGAA---GATTGTATTCTGGTCGATCTGGCGTCAGTCAAAAACCCGGCCTCTGCAGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     436 GTGATCATTAGCGTGCCGATTCACCTGACCGAGCAGGTGATTGCCCAACTGCCACCACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    364 GGCTACACGGTTAAAACGCTGGAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68 ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88 MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr----GlyMetAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48 ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TICGCTTATGGTCTGCATTTAGCCGAAGAGAACGTCAATCTGGATCAGCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGCTGGCTGCCCATAACGGGCCTGTA-----CTGGGTCTGCATCCGATGTTTGGCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                            AlaGluAlaLeu-----ArgSerPheAlaAlaLeuValGlyAspAspPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAACTCTATGCGGATATCATCATGTCTTCAGAGAGTAA-TCTGGCGCTGATAAAACGCTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thrala-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                          AlaAspAlaPro----
                                                                                                                                                                                                                                                                                                                                                                                                         TTACCAGCGGTTTGGTGAAGCGATTGCGCTGCTGGAGCAGGCGACAAGCAGGCGTTTAT 1019
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCGTCGCCCATTTACCGGCTTGAACTGGCGATGGTGGGGGCGGTTGTTCGCTCAGGATCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCGCTGTTGAGCATGACCAGAACATGGCATTCATTCAGGCGCTGCGTCACTTTGCTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----AAAGAGGACTGGCCTCAGGCTGAGACTCTGCTCAGCGATGCCGGAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                                                                         ------AspArgAlaAspAlaProGlyArg
                                                                                                                                                                                                                                                                                                          -GlyHisProGly 274
                                                                                                                                                                                                                                                                                                                                            1079
                                                                                                                                                                                                                                                                                                                                                                         266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      47
                                                                                                                                                                                                                                                                                                                                                                                                                                           258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      435
```

Frac

```
; PRIOR FILING DATE: 2000-08-23; PRIOR APPLICATION NUMBER: US 08/487,429; PRIOR FILING DATE: 1995-06-07; PRIOR APPLICATION NUMBER: US 08/426,787; PRIOR FILING DATE: 1995-04-21; NUMBER OF SEQ ID NOS: 1
; SOFTWARE: PatentIn version 3.1; SEQ ID NO 1.
                                                                                                                                                                                           FEATURE:
NAME/KEY: misc feature
'COCATION: (45593)..(45593)
'COCATION: n equal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PEATURE:
NAME/KEY: misc feature
TON: (9921)..(992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
NAME/KEY: misc_feature
LOCATION: (10150)...(10150)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 1830121
TYPE: DNA
ORGANISM: Haemophilus influenzae
                        NAME/KEY: misc_feature
LOCATION: (51334)..(51334)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
NAME/KEY: misc feature
LOCATION: (4747)..(4747)
OTHER INFORMATION: n equals
                                                                     NAME/KEY: misc_feature
LOCATION: (47036)...(47036)
OTHER INFORMATION: n equals
FEATURE:
                                                                                                                                 NAME/KEY: misc feature
LOCATION: (45732)..(45732)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (44975)...(44975)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: (44905)..(44905)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: (36636)..(36636)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc feature
LOCATION: (36543)..(36543)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc feature
LOCATION: (29298)..(29298)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc feature
LOCATION: (40808)..(40810)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc feature
LOCATION: (36551)...(36551)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCATION: (9921)..(9921)
OTHER INFORMATION: n equals
VAME/KEY: misc_feature
                                                                                                                                                                                         OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (44416)..(44416)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a,
                          gi
V
                                                                               a,
                                                                                                                                     a,
                                                                                                                                                                                           à
                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                         ā
                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a,
                                                                                                                                                                                           ŗ
                                                                                                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŗ
                                                                               ,
                                                                                                                                     ,
                                                                                                                                                                                                                                               ή,
                                                                                                                                                                                                                                                                                                     Ç
                                                                                                                                                                                                                                                                                                                                                                                                               Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ,
                                                                               9
                                                                                                                                                                                                                                                                                                                                                         ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ıΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                  ç
                                                                                                                                     õ
                                                                                                                                                                                           о
К
                                                                                                                                                                                                                                                о
К
                                                                                                                                                                                                                                                                                                      ဝူ
                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                 암
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ů,
                            or
```

```
FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                            OTHER IN
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                      OTHER IN
FEATURE:
                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (120038)..(120038)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                   NAME/KEY: misc feature
LOCATION: (119750)..(119750)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (65309)..(65309)
OTHER INFORMATION: n equal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCATION: (51602)...(51602)
OTHER INFORMATION: n equals
FEATURE:
NAME/KEY: misc feature
LOCATION: (51786)...(51786)
                              FEATURE:
NAME/KEY: misc_feature
LOCATION: (122336)..(122336)
OTHER INFORMATION: n equals
                                                                            NAME/KEY: misc_feature
LOCATION: (122167)...(122167)
OTHER_INFORMATION: n equals
                                                                                                                          NAME/KEY: misc_feature
LOCATION: (121344)..(121344)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (119924)..(119924)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: (117136)..(117136)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (107248)..(107248)
OTHER INFORMATION: n equals
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (105121)..(105121)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc feature
LOCATION: (102696)...(102696)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
NAME/KEY: misc_feature
LOCATION: (100091)..(100091)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature
LOCATION: (80024)..(80024)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc feature
LOCATION: (55369)..(55369)
OTHER INFORMATION: n equal
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (51805)..(51805)
OTHER INFORMATION: n equal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: n equals FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (65313)..(65313)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: n
  LOCATION:
misc_feature
(131340)..(131340)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a)
                                                                                                                            g)
                                                                                                                                                                                                                         a,
                                                                                                                                                                                                                                                                       Di
                                                                                                                                                                                                                                                                                                                    <u>م</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                              'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     a
                                  a
,
                                                                               ď
                                                                                                                                                                            ā
                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                b,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ţ,
                                  ŗ
                                                                                                                            ŗ
                                                                                                                                                                            ŗ
                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                     Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ĺţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ĺ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                  ω
                                                                              g
                                                                                                                            g
                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                      ø
                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ťΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                          Θ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                   õ
                                                                                유
                                                                                                                              ę
R
                                                                                                                                                                            ö
                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                   or
                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                 O
                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                        O
```

```
S
                                       문
                                                              Ś
                                                                                          밁
                                                                                                               δ
                                                                                                                                           밁
                                                                                                                                                                   ঠ
                                                                                                                                                                                             문
                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                             US-10-089-514-6 (1-322) x US-10-329-670-1 (1-1830121)
                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (152530)..(152530)
                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc feature
LOCATION: (152500)..(152500)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (150841)...(150841)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc feature
LOCATION: (147197)..(147197)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc feature
LOCATION: (145171)..(145171)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc_feature
LOCATION: (145058)..(145058)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc feature
LOCATION: (142750)..(142750)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (140398)..(140398)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
LOCATION: (139910)..(139910)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc feature
LOCATION: (131360)..(131360)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: n equals FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
OCATION: (145942)..(145942)
                                                                                                                                                                                                                                                                                                                                       No.:
                                         1370871
                                                                                          1370841
                                                                                                                                            1370799
                                                                                                                                                                                             1370739
                                                                                                                   42
                                                                                                                                                                    22
               82
                                                                                                                                                                                                                SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
AlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal---
                                     TTAGCGAATGCTGATCGTGATCGTTCCGTCCCTATTAATCTCACCTTAGAAACAATT
                                                                                          CGCGAAGATTGGGCGGTGGCTGAAAGTATT-----
                                                                                                                                         CGTTATTTACGTGCATCTGGCTATCCAATTTCTATTTTAGAT----
                                                                                                                                                                 GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                ArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAla
                                                                                                                                                                                          TCTGATATTCACAAAATTGTTATTGTGGGCGGTTATGGTAAATTAGGCGGCTTATTTGCC 1370798
                                                              LeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaVal
                                                                                                                                                                                                                                                                       9.5e-09
216.00
45.26%
28.10%
13.21%
                                                                                                                                                                                                                                                                                                                                                                                                                a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ā
                                                                                                                                                                                                                                                                                                                                                                                                               ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŗ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ָר
                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  φ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                   Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       မ္ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Or,
                                                                                                                                                                                                                                                                                                                                                                                                                Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                  1630121
77
47
.: 47
. 118
32
8
                                                                                                                   5
              100
                                       1370930
                                                                                        1370870
                                                                                                                                         1370840
```

```
RESULT 11
US-10-158-865-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/10/158,865
CURRENT FILING DATE: 2002-06-03
PRIOR APPLICATION NUMBER: US 09/557,884
PRIOR FILING DATE: 2000-04-25
PRIOR APPLICATION NUMBER: US 08/476,102
PRIOR APPLICATION NUMBER: US 08/476,102
PRIOR APPLICATION NUMBER: 05 08/426,787
PRIOR APPLICATION NUMBER: US 08/426,787
PRIOR APPLICATION NUMBER: US 08/426,787
PRIOR FILING DATE: 1995-04-21
NUMBER OF SEQ ID NOS: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1, Application US/10158865
Publication No. US20040203093A1
                                                                                                                                                                                                                                                                                                                                  SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILE REFERENCE: PB186P2C1D1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Fleischmann et al.
TITLE OF INVENTION: Thereof, and Uses Thereof
                                                                                                                                                                                                                                                                                                                                                       SOFTWARE:
                                                                                                                                                                                                                                                                                       LENGTH: 18
                                                                                    FEATURE:
NAME/KEY: misc_feature
LOCATION: (9921)..(9921)
OTHER INFORMATION: n equals
                                                                                                                                                                          FEATURE:
NAME/KEY: misc feature
LOCATION: (4747)..(4747)
OTHER INFORMATION: n equals
OTHER INFORMATION: n equals
                         NAME/KEY: misc feature LOCATION: (10150)..(10150)
                                                                                                                                                                                                                                                              ORGANISM: Haemophilus influenzae
                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1371285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1371165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1371045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1370931 GAACGCTTAAAACCTTATTTAACGGAAAACATGCTACTTGCAGATTTAACCTCTGTTAAG 1370990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1371405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1371345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1371225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                            1830121
                                                                                                                                                                                                                                                                                                                                                       PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspAspProAspArgAlaAspAlaProGlyArgAlaAspAla 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCGCAAGATGCAGAGCTTTACGCAGATATTATTATGGATAAGTCAGAAAAATTTAGCGGTA 1371404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATTGCACTTTCTTCCCCTATTTATCGGTTAGRACTTGCGATGATAGGTCGTTTATTT 1371344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CATTTTTCGACTTTTGCGAATGGTTTACACCTTTCCAAACAGCCCATTAATCTCGCTAAT 1371284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTTATCAAACCAATGCCACAGAACACGATCATAATATGACTTATATACAAGCCTTGCGC 1371224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGACGTTTTCCTGAACGTTATGAATGGTTACTTGAGCAAATTCAAATTTGGGGTGCAAAA 1371164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnProMetPhe---AlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----SerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGly 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlySerProGluValTyrGlyAspIle-----GlnArgSerAsnProArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrargaspGlyProGlyValThralaLeuLeuArgLeuValGluGlyGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGTGAACCGCTAGCGAAAATGCTTGAAGTTCATACTGGTGCTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----GAAAATAATGATCGTCAAGGTTTTATTGATGCT 1371482
                                                                                      a,t,
                                                                                                                                                                          a,t,
                                                                                        ú
                                                                                                                                                                          Ü
                                                                                        ö
                                                                                                                                                                               or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Haemophilus Influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---TTAGGTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1371044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genome,
```

a,t,c,

õ

```
FEATURE:
NAME/KEY: misc feature
LOCATION: (47036)...(47036)
OTHER INFORMATION: n equals
NAME/KEY: misc feature
LOCATION: (65313)..(65313)
OTHER INFORMATION: n equals
                                                 NAME/KEY: misc_feature
LOCATION: (65309)..(65309)
OTHER INFORMATION: n equals
                                                                                                                                                                                                 FEATURE:
NAME/KEY: misc_feature
LOCATION: (51786)...(51786)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc feature
LOCATION: (44975)...(44975)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (44416)..(44416)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (36636)..(36636)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc feature
LOCATION: (36551)..(36551)
OTHER INFORMATION: n equals
                                                                                                NAME/KEY: misc feature
LOCATION: (55369)..(55369)
OTHER INFORMATION: n equal
                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (51805)..(51805)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                    OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                  NAME/KEY: misc feature
LOCATION: (51334)..(51334)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (45732)..(45
                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: (45593)..(45593)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc feature
LOCATION: (44905)...(44905)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (40808)..(40810)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: (36543)..(36)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (29298)...(29298)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature
LOCATION: (51602)..(51602)
                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (45593)..(45
                                                                                                                                                                                                                                                                                                                                                                                                                 .. (45732)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .. (36543)
                                                                                                   equals
                                                                                                                                                                                                                                                                                                      a,t,
                                                   Ø
                                                                                                                                                     ā
                                                                                                                                                                                                                                                     b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ø
  a,t,c,
                                                                                                                                                                                                                                                                                                                                                      a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                      a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a,t,c,
                                                  'n
                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                     ì
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'n
                                                  'n
                                                                                                   ò
                                                                                                                                                     ò
                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                     Ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or
   ဝ္ဂ
                                                                                                                                                                                                                                                     or
                                                                                                                                                                                                                                                                                                     or
                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                  or
P
                                                                                                   ç
                                                                                                                                                     õ
                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ç
  ω
                                                 9
                                                                                                  Q
                                                                                                                                                                                                    ω
                                                                                                                                                                                                                                                    ğ
                                                                                                                                                                                                                                                                                                    Ð
                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ω
```

```
NAME/KEY: misc feature
LOCATION: (121344)..(121344)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc_feature
LOCATION: (119750)..(119750)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
NAME/KEY: misc_feature
LOCATION: (117136)..(117136)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
NAME/KEY: misc_feature
LOCATION: (107248)..(107248)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (105121)..(105121)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc feature
LOCATION: (102696)..(102696)
OTHER INFORMATION: n equals
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OTHER INFORMATION: n equals FEATURE:
FEATURE: misc_feature
LOCATION: (100091).. (100091)
OTHER INFORMATION: n equals
                       NAME/KEY: misc_feature
LOCATION: (145058)..(14
OTHER INFORMATION: n ed
                                                                                                                               NAME/KEY: misc_feature
LOCATION: (140398)..(140398)
OTHER INFORMATION: n equals
                                                                                                                                                                                   NAME/KEY: misc feature LOCATION: (139910)..(1: OTHER INFORMATION: n ec
                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (131360)..(131360)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                          FEATURE:

NAME/KEY: misc_feature
LOCATION: (131340)..(131340)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (122336)..(122336)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (122167)..(1:
OTHER INFORMATION: n ed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc feature LOCATION: (119924)..(11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc feature
LOCATION: (80024)..(80024)
                                                                         NAME/KEY: misc_feature
LOCATION: (142750)..(142750)
OTHER INFORMATION: n equals
                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (120038)..(120038)
VAME/KEY: misc_feature
                        equals
                                      (145058)
                                                                                                                                                                                    equals
                                                                                                                                                                                                   (139910)
                                                                                                                                                                                                                                                                                                                                                                                                  equals
                                                                                                                                                                                                                                                                                                                                                                                                                (122167)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (119924)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a,t,
                                                                            a,t,
                                                                                                                                                                                                                                        a,t,
                                                                                                                                                                                                                                                                                           a,t,
                                                                                                                                                                                                                                                                                                                                                                                                  a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                     a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a,t,
                                                                                                                                a,t,
                                                                                                                                                                                                                                                                                                                                              a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a,t,
                                                                                                                                                                                    a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                рJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'n
                                                                            'n
                                                                                                                                ú
                                                                                                                                                                                    ú
                                                                                                                                                                                                                                       ú
                                                                                                                                                                                                                                                                                          'n
                                                                                                                                                                                                                                                                                                                                              ū
                                                                                                                                                                                                                                                                                                                                                                                                  ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ċ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ņ
                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Or.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ဓ္
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or
                                                                              õ
                                                                                                                                or
                                                                                                                                                                                    or
                                                                                                                                                                                                                                                                                            or
S
                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         or
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
 S
                                    밁
                                                                       ঠ
                                                                                                             밁
                                                                                                                                          र्
                                                                                                                                                                                       밁
                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       श
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-6 (1-322) x US-10-158-865-1 (1-1830121)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY: misc_feature
LOCATION: (152500)..(152500)
OTHER INFORMATION: n equals a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc feature LOCATION: (152530)..(152530)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc feature
LOCATION: (150841)..(150841)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY: misc_feature
LOCATION: (147197)..(147197)
OTHER INFORMATION: n'equals a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (145942)..(145942)
OTHER INFORMATION: n equals a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: (145171)..(145171)
OTHER INFORMATION: n equals a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1370799 CGTTATTTACGTGCATCTGGCTATCCAATTTCTATTTTAGAT------ 1370840
                                                                                                                                                                                                                                                                                                                                                                                                             1370931 GAACGCTTAAAACCTTATTTAACGGAAAACATGCTACTTGCAGATTTAACCTCTGTTAAG 1370990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1370871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1370841 CGCGAAGATTGGGCGGTGGCTGAAAGTATT-----
                                        1371225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1370739
                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                            101
   200
                                                                                                                                                                                                                                                                                                                                                                                                                                                   82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTGATATTCACAAAATTGTTATTGTGGGCGGTTATGGTAAATTAGGCGGCTTATTTGCC 1370798
                                                                                                           ATTTATCAAACCAATĠĊĊACAĠAAĊAĊĠATCATAATATGACTTATATAĊAAĠĊĊTTĠCGC 1371224
                                                                                                                                                                                   GACGTTTTCCTGAACGTTATGAATGGTTACTTGAGCAAATTCGAGATTTGGGGTGCAAAA 1371164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly 41
LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu 219
                                    CATTTTTCGACTTTTGCGAATGGTTTACACCTTTCCAAACAGCCCATTAATCTCGCTAAT 1371284
                                                                                                                                                                                                                                                            AsnProMetPhe---AlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TAGCGAATGCTGATGTCGTGATCGTTCCGTCCCTATTAATCTCACCTTAGAAACAATT 1370930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla 21
                                                                         HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                              ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr 179
                                                                                                                                                                                                                       ThrargaspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArg 159
                                                                                                                                                                                                                                                                                                                                     CGTGAACCGCTAGCGAAAATGCTTGAAGTTCATACTGGTGCTGTT-----TTAGGTTTA
                                                                                                                                                                                                                                                                                                                                                                        ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu 120
                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9.5e-09
216.00
45.26%
28.10%
13.21%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    မ္
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          47
118
32
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1830121
                                                                                                                                                                                                                                                                                                                                     1371044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1370870
```

```
PRIOR APPLICATION NUMBER: US 10/158,865
PRIOR APPLICATION NUMBER: US 10/158,865
PRIOR PRILING DATE: 2002-06-03
PRIOR FILLING DATE: 2002-04-25
PRIOR FILLING DATE: 2000-04-25
PRIOR APPLICATION NUMBER: US 08/476,102
PRIOR FILLING DATE: 1995-06-07
PRIOR FILLING DATE: 1995-04-21
NUMBER OF SEQ ID NOS: 1
SOFTWARE: PATENTIN VERSION 1
SOFTWARE: PATENTIN VERSION 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-981-687-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Fleischmann et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ ID NO :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Application US/10981687 Publication No. US20050131222A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: Nucleotide Sequence of the Haemophilus Influenzae Rd Genome, Frantitle OF INVENTION: Thereof, and Uses Thereof FILE REFERENCE: PB186P2C1D12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/10/981,687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
NAME/KEY: misc feature
LOCATION: (4747)..(474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: DNA
          NAME/KEY: misc_feature
LOCATION: (40808)..(40810)
OTHER INFORMATION: n equals
                                                                             NAME/KEY: misc_feature
LOCATION: (36636)..(36636)
OTHER_INFORMATION: n equals
                                                                                                                                                NAME/KEY: misc feature
LOCATION: (36551)..(36551)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                     FEATURE:
NAME/KEY: misc_feature
LOCATION: (36543)...(36543)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (10150)..(10150)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                      LOCATION: (29298)..(29298)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY: misc_feature
LOCATION: (9921)..(992)
                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION: (9921)..(9921)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Haemophilus influenzae
EATURE:
                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                             NAME/KEY: misc_feature
LOCATION: (29298)..(29
                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1371285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1830121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlySerProGluValTyrGlyAspIle-----GlnArgSerAsnProArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCGCAAGATGCAGAGCTTTACGCAGATATTATTATGGATAAGTCAGAAAATTTAGCGGTA 1371404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspAspProAspArgAlaAspAlaProGlyArgAlaAspAla 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---SerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGly 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .. (4747)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GAAAATAATGATCGTCAAGGTTTTATTGATGCT
              a,t,c,
                                                                                                                                                      a,t,
                                                                                                                                                                                                                                                                                           a,t,
                                                                                                                                                                                                                                                                                                                                                                a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                     a,t,
                                                                                                                                                                                                                        þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                   ò
                                                                                                                                                      ņ
                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                ò
                မ္ပ
                                                                                   õ
                                                                                                                                                      õ
                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                           õ
                                                                                                                                                                                                                                                                                                                                                                õ
                                                                                                                                                                                                                                                                                                                                                                                                                                     õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ဝူ
                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                              ú
                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1371482
```

```
NAME/KEY: misc feature
LOCATION: (107248)...(107248)
OTHER INFORMATION: n equals
                                                                         NAME/KEY: misc_feature
LOCATION: (105121) ... (105121)
OTHER INFORMATION: n equals
                                                                                                                              NAME/KEY: misc feature
LOCATION: (102696)..(102696)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                  NAME/KEY: misc feature
LOCATION: (65313)..(65313)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
NAME/KEY: misc_feature
LOCATION: (55369)...(55369)
OTHER INFORMATION: n equals
                                                                                                                                                                               NAME/KEY: misc feature
LOCATION: (100091)..(100091)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                 NAME/KEY: misc feature
LOCATION: (80024)..(80024)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                     FEATURE:
NAME/KEY: misc_feature
LOCATION: (65309)..(65309)
COTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (51805)..(51805)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: misc feature
LOCATION: (51786)..(51786)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (51602)..(51602)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (51334)..(51334)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature
LOCATION: (47036)..(47036)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc feature
LOCATION: (45732)..(45732)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: misc_feature
LOCATION: (45593)..(45593)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: misc_feature
LOCATION: (44975)...(44975)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: misc feature
LOCATION: (44905)..(44905)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (44416)..(44416)
OTHER INFORMATION: n equals a,t,c,
NAME/KEY: misc_feature
                            a,t,
                                                                                                                                                                                  a,t,
                                                                                                                                                                                                                                   a,t,
                                                                                                                                                                                                                                                                                                                                        a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,t,
                                                                             bi
                                                                                                                                ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         b
                                                                                                                                                                                                                                                                                      a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                           a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                              a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a,t,c,
                                                                               ò
                            ò
                                                                             ò
                                                                                                                                ò
                                                                                                                                                                                  ò
                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                        'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                            o
R
                                                                             or
n
                                                                                                                                                                                  or
                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                        õ
                                                                                                                                                                                                                                                                                                                                        or
                                                                                                                                                                                                                                                                                                                                                                                            or
                                                                                                                                                                                                                                                                                                                                                                                                                                              or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or
P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             or
R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or
                                                                                                                               õ
                          ω
                                                                            9
                                                                                                                              ω
                                                                                                                                                                                Ω
                                                                                                                                                                                                                                   Q
                                                                                                                                                                                                                                                                                     ω
                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                          ω
                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ю
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ω
```

```
OTHER IN FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCATION: (117136)...(117136)
OTHER INFORMATION: n equals a,t,c,
FEATURE:
NAME/KEY: misc feature
LOCATION: (119750)...(119750)
NAME/KEY: misc feature
LOCATION: (152500)..(152500)
OTHER INFORMATION: n equals
FEATURE:
                                                                   NAME/KEY: misc feature
LOCATION: (150841)..(150841)
OTHER INFORMATION: n equals
                                                                                                                       NAME/KEY: misc_feature
LOCATION: (147197)..(147197)
OTHER_INFORMATION: n equals
                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (145942)..(145942)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: (145171)...(145171)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                               OTHER INFORMATION: n equals FEATURE:
                                                                                                                                                                                                                                                                                                                                                NAME/KEY: misc_feature
LOCATION: (142750)..(142750)
OTHER_INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: misc_feature
LOCATION: (140398)..(140398)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc feature
LOCATION: (139910)...(139910)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature
LOCATION: (131360)...(131360)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
NAME/KEY: misc_feature
LOCATION: (131340)...(131340)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: misc_feature
LOCATION: (122336) ... (122336)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY: misc feature
LOCATION: (122167)...(122167)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (121344)..(121344)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc feature
LOCATION: (120038)..(120038)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (119924)..(119924)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION: (119750)..(119750)
OTHER INFORMATION: n equals
                                                                                                                                                                                                                                                                                                          NAME/KEY: misc_feature
LOCATION: (145058)..(1
                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                       FEATURE
                                                                                                               FEATURE:
                                                                                                                                                                      FEATURE
                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                              a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a,t,
                                                                     a,t,
                                                                                                                                                                                                                                                                                                                                                                                                          a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a,t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,t,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a,t,
              a,t,c,
                                                                                                                          a,t,c,
                                                                                                                                                                                 a,t,c,
                                                                                                                                                                                                                                       a,t,c,
                                                                                                                                                                                                                                                                                             a,t,c,
                                                                                                                                                                                                                                                                                                                                                   a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a,t,c,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a,t,c,
                                                                   'n
                                                                                                                                                                                                                                                                                                                                                                                                        Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ū
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ō
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ö
              õ
                                                                   20
                                                                                                                          õ
                                                                                                                                                                                   ç
                                                                                                                                                                                                                                        ç
                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         မ္ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ŏ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ဓ္
                                                                                                                                                                                                                                                                                                                                                                                                          0
F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                õ
                                                                   ω
                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                        ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ω
```

Alignment Scores:

```
.. .. .. .. .. ..
                                                                                                           RESULT 13
US-10-450-763-1605
                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            १
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-089-514-6 (1-322) x US-10-981-687-1 (1-1830121)
 Sequence 1605, Application US/10450763
Publication No. US20050196754A1
GENERAL INFORMATION:
APPLICANT: Hyseq, Inc
TITLE OF INVENTION: NOVEL NUCLEIC ACT
FILE REFERENCE: 790CIP3/US
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1371225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1371165 ATTTATCAAACCAATGCCACAGAACACGATCATAATATGACTTATATACAAGCCTTGCGC 1371224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1371105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
0
:.
                                                                                                                                                                                                                                                                                                                                                                                  1371285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1370991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1370931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1370871
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1370841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1370799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1370739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                      GCGCAAGATGCAGAGCTTTACGCAGATATTATTATGGATAAGTCAGAAAATTTAGCGGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CATTTTCGACTTTGCGAATGGTTTACACCTTTCCAAACAGCCCATTAATCTCGCTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACGTTTTCCTGAACGTTATGAATGGTTACTTGAGCAAATTCAAATTTGGGGTGCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TAGCGAATGCTGATCGTGATCGTTCCGTCCCTATTAATCTCACCTTAGAAACAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGTTATTTACGTGCATCTGGCTATCCAATTTCTATTTTAGAT------
                                                                                                                                                                 -----GAAAATAATGATCGTCAAGGTTTTATTGATGCT 1371482
                                                                                                                                                                                                                                    GlyGlySerProGluValTyrGlyAspile-----GlnArgSerAsnProArgAlaAla
                                                                                                                                                                                                                                                                                                                                                                               TTATTGGCACTTTCTTCCCCTATTTATCGGTTAGRACTTGCGATGATAGGTCGTTTATTT
                                                                                                                                                                                                                                                                                                                                                                                               LeuAlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThr 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATCCAATGTTTGGTGCAGATATTGCAAGTATGGCAAAACAAGTGGTTGTGCGTTGTGAT 1371104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AsnProMetPhe---AlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAACGCTTAAAACCTTATTTAACGGAAAACATGCTACTTGCAGATTTAACCTCTGTTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CGCGAAGATTGGGCGGTGGCTGAAAGTATT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTGATATTCACAAAATTGTTATTGTGGGCGGTTATGTGTAAATTAGGCGGCTTATTTGCC
                                                                                                                                                                                                AspAspProAspArgAlaAspAlaProGlyArgAlaAspAla 269
                                                                                                                                                                                                                                                                 -----SerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTGAACCGCTAGCGAAAATGCTTGAAGTTCATACTGGTGCTGTT-----TTAGGTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9.5e-09
216.00
45.26%
28.10%
13.21%
                      ACIDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                      AND
                      POLYPEPTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 47
118
32
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1830121
77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                       255
                                                                                                                                                                                                                                                                                                                                                                                                                  219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1371164
                                                                                                                                                                                                                                    1371449
                                                                                                                                                                                                                                                                                                        1371404
                                                                                                                                                                                                                                                                                                                                                                               1371344
                                                                                                                                                                                                                                                                                                                                                                                                                                                   1371284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1371044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1370990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1370930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1370840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1370798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1370870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/450,763;
CURRENT FILING DATE: 2003-06-11
PRIOR APPLICATION NUMBER: PCT/US01/08631
PRIOR FILING DATE: 2001-03-30
PRIOR PELLING DATE: 2001-03-31
PRIOR RILING DATE: 2000-03-31
PRIOR PILING DATE: 2000-03-31
PRIOR APPLICATION NUMBER: 09/649,167
PRIOR APPLICATION NUMBER: 09/649,167
PRIOR FILING DATE: 2000-08-23
NUMBER OF SEQ ID NOS: 60736
SEQ ID NO 1605
SEQ ID NO 1605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             , LUCATION: (567)..(4)
; OTHER INFORMATION: 81% homologous to Escherichia coli tRNA
; OTHER INFORMATION: nucleotidyltransferase,accession number M12788,Smith-Waterman
; OTHER INFORMATION: =820.
US-10-450-763-1605
                                   8
                                                                  Ś
                                                                                                         В
                                                                                                                                 Ş
                                                                                                                                                                              밁
                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-089-514-6 (1-322) x US-10-450-763-1605 (1-1792)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 1792
TYPE: DNA
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: SIMILAR
LOCATION: (567)...(4)
                                                                                                                                           167
                                                                                                                                                                                                                                                    604
   207
                                                                                                                                                                                                                                                                                    130 MetThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyValThrAla---
                                                                                                                                                                                                                                                                                                                                         490 GATTGTATTCTGGTCGATCTGGCATCAGTGAAAAATGGGCCATTACAGGCCATGCTGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        370 GCTAACGAAACCCCCCCCCGGGCCCGGAACCCCAACCCCACGAACCCATGCACAGCCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49
                                                                                                                                         GluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPhe 186
                                                                                                                                                                              CAATGGTTTCTGGAGCAAATTCAGGTCTGGGGCGCTCGGCTGCATCGTATTAGCGCCGTC
ProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerProGluValTyr
                                   GGGCTGCACCTGGCAGAAGAAAATGTTCAGCTTGAGCAACTTCTGGCGCTCTCTTCGCCG
                                                                  GlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThrAlaProPro
                                                                                                     GAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACTTTTGCTTAC
                                                                                                                                                                                                             -----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeuThrAlaGlu 166
                                                                                                                                                                                                                                                  AGCCTGGCAAAGCAAGTT-----GTGGTCTGGTGTGATGGACGTAAACCGGAAGCATAC
                                                                                                                                                                                                                                                                                                                       GCGCATGATGGTCCGGTG-----CTGGGGCTACACCCGATGTTCGGTCCGGACAGCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                             ---AlaLeuLeuAlaAspThrLeuSerValArgThrGly---MetAlaAlaGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGCCCTCCCCCCCGCGAGCCCCACCCCGCACCCTATGGTCAATTACCGCCTTTACGAAA 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----GCGCCGCACGACATTCTGCGTCTGCGTGGTGCCATGCTGTTACTCGTCACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeuMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGTGACGTAATTTCCGACGGTCCGGAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ------ArgProGly----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.66e-12
213.00
39.78%
26.88%
13.03%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
```

S

226

837 206 777 109

429

91

369

549

129

```
Percent Similarity:
Best Local Similarity:
Query Match:
                    Ś
                                                      밁
                                                                                      S
                                                                                                                          В
                                                                                                                                                           Ś
                                                                                                                                                                                                밁
                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 14
US-10-297-465A-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               श
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                             US-10-089-514-6 (1-322) x US-10-297-465A-1 (1-2731748)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-297-465A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 1
LENGTH: 2731748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 1, Application US/10297465A Publication No. US20040142413A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Medianis, Joao
APPLICANT: Arruda, Paulo
TITLE OF INVENTION: Isolated Genome of Xylella Fastidiosa and
FILE REFERENCE: FAPESP 202 US (10213376)
CURRENT FILING DATE: 2001-06-07
PRIOR APPLICATION NUMBER: US/10/297,465A
CURRENT FILING DATE: 2001-06-07
PRIOR APPLICATION NUMBER: PCT/IB01/01618
PRIOR FILING DATE: 2001-06-07
PRIOR APPLICATION NUMBER: FCT/IB01/01618
PRIOR APPLICATION NUMBER: 60/209,906
PRIOR FILING DATE: 2001-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Simpson, Andrew
APPLICANT: Reinach, Fernando
APPLICANT: Setubal, Joao
APPLICANT: Medianis, Joao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 1
SOFTWARE: PatentIn vers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA
ORGANISM: Xylella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          М
О
..
                                                        2217376
                                                                                                                                                                                                                                                                      2217514
                                                                                                                                                                                                                                                                                                                                           2217574
                                                                                                                            2217430
                                                                                                                                                                                                2217454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 227
                                                                                       78
                                                                                                                                                               60
                                                                                                                                                                                                                                   40
                                                                                                                                                                                                                                                                                                        21
LeuAlaAspThrLeuSerValArgThrGly---MetAlaAlaGluLeuAlaAlaHisAla
                                                                                                                                                                                                                                                                                                                                        GTGAGTGCGTCTCCCGTTGTTGGTATTGTCGGCAGTGCTGGTGCCTATGGACACTGGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyAspIleGlnArgSerAsnProArgAlaAlaSerAla----
                                                                                                                                                                                                GCCTCGCTATCCCCAGCCGAGCTA-----
                                                                                                                                                                                                                                                                                                                                                               MetSerGlyPheProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CGCAAGGTGGAGCACTGGTTCGGCGATTACGCACAGCGTTTTCAGAGTGAAAGCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGACATCATTATGTCGTCAGAGCGTAATCTGGCGTTAATCAAACGTTACTATAAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaVal-----HisGluAspValAla
                                                                                                                                                                                                                                 ProGlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyProGluLeuAla
                                                                                                                                                                                                                                                                    GGACGCTTTCTGCGTGAGCGTATGGGCTTGAAGGTGATTGGCTATGATCCTGCAGATCCA
                                                                                                                                                                                                                                                                                                     AlaGlyLeuLeuArgGlu---AlaGlySerArgThrLeuValValAspLeuValProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaProGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCGGCGAGGCGATTGAGTTGCTGGAGCAGGGCGATAAGCAGGCGTTTATTGACAGTTTC 1017
                                                     TTGATTGGTGAATATGTGGCGATGGCTGATGGCACT-----GACGCTGGGCAGCTT
                                                                                                                        -----CTACGTTGTGCTGATGTGTTGGTGTTTTCTGTGCCGATCAGGCAAACCGCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                version 3.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fastidiosa
                                                                                                                                                                                                                                                                                                                                                                                                                                            0.00028
174.50
41.75%
29.97%
10.67%
                                                                                    -LysAlaValAlaProValThrArgLeuMetArgProGlyAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----ArgArgAlaLeuAlaGluAlaLeu 247
                                                                                                                                                                                                                                                                                                                                                                                                                                           2731748
89
35
109
65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Uses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    897
                                                      2217326
                                                                                         93
                                                                                                                          2217377
                                                                                                                                                                                                2217431
                                                                                                                                                                                                                                                                    2217455
                                                                                                                                                                                                                                                                                                                                        2217515
S
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                        Alignment Scores: Pred. No.:
                                                                                                                                                                                                  ; ORGANISM: Pseudomonas fluorescens US-10-369-493-37621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-369-493-37621
US-10-089-514-6 (1-322) x US-10-369-493-37621 (1-2025)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 37621, Application US/10369493 Publication No. US20030233675A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS: 47374
SEQ ID NO 37621
LENGTH: 2025
TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Cao, Yongwei
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Goldman, Barry S.
APPLICANT: Chen, Xianieng
                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: EXPRESSION OF MICROBIAL PROTEINS TITLE OF INVENTION: PLANTS WITH IMPROVED PROPERTIES FILE REFERENCE: 38-10(52052)B CURRENT APPLICATION UNMERS: US/10/369,493
CURRENT FILING DATE: 2003-02-28
                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: US 60/360,039
PRIOR FILING DATE: 2002-02-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2216960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2217062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2217122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2217182 GCTACATCATTGGCGTCCGTGGTTGATGCAGTTGTGAGGCGTTGGAGGCCGAATGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2217232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2217265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2217325 TGGATTGATGTGACCTCAATCAAGCAGGCCCCCGTGGAAGCAATGTTGGCTTCGCAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2216840 ÁTTGGTGAGTTGTGGTGATGÁTGCAGCÁCGTACTCGATTTCGAGCCGAC 2216792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2216900 AAATTCGTATGTGCTTGAGATGCTAGACCATCTGCTTAGTCACTTGCTGGAACTGCGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    212 uAlaLeuLeuAlaArgValLeuGlyGlySerProGluValTyrGlyAspIleGlnArgSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aLeuValGlyAspAspProAspArgAlaAspAlaProGlyArgAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            aValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyVal--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCGATGATTGCGCGGGATTCTATCGTTGAATCCGTCGATTTATGAGGATATCCAGTTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---CCCAAGGCACCC----ACGCT-CAAGGGCCGGGTGTTGGTGGTCTGCGAGGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---ThrAlaLeuLeuArgLeuValGlu------GlyGlyGlyGlyArgPro-Va
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ArgProValAlaAlaValValThrArgAspGlyProGlyVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    rAsnProArgAlaAlaSerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCTGCGACGCCCGAGCACCATGACCGGCTGATGGCGTTGGTACAGGCAATGGTACATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              lArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----GAGGTAGTTGGGTTGCATCCTATGACTGCACCA------
                                         6.65e-07
165.00
39.67%
28.52%
10.09%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -AspValArgAlaLeuAlaAlaThrAlaProProProHisGlnValLeuLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----TGTCACTTGGCACAGGCGGGTGTGTTACGTGATTACCTGCC 2217021
                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                              PLANTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                FOR PRODUCTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2216961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2216841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2216901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2217063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2217123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2217183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2217266
                                                                                                                                                                                                                                                                                                                                                                                                                                                ဝှ
```

8 ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla 27

```
Search completed: October 6, 2005, 02:37:03 Job time : 3498.63 secs
                                                                   맑
                                                                                             ঠ
                                                                                                                                  밁
                                                                                                                                                        S
                                                                                                                                                                                                  밁
                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                    619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      505 GTGGTCGATCGCTTGTGGCCGTGAGCTGGGCGCCGACGTCGAGCACATGCAGGTCGAACGT 564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            385
                                                                   847
                                                                                                                                   820
                                                                                                                                                                                                   766
                                                                                                                                                                                                                          246 AlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArgAlaAspAlaProGly 265
                                                                                                                                                                                                                                                                                            226 TyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAlaLeuAlaGlu 245
                                                                                                                                                                                                                                                                                                                                      679
                                                                                                                                                                                                                                                                                                                                                              206 ProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySerProGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                              188 Leu-----AlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThrAlaPro 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      565 CACGATGAAGTGCTGGCCGCACCAGTCATCTGCCGCAC----CTGCTGGCCTTCGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  168 HisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuSerPheGly 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        445 TTCCGTCGTCATAAAGTGATTCTGACCCCGTTGGAGCAGACCGATCCGGCCGCCCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          337 GTGCGTGCGGCGACCGAAGCGTTCGGC------GGCATGCCGGCGCGTTTCGTG 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  103
                                                                                                 286 PheGlyGluLeuArg 290
                                                                                                                                                               266 ArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGlyAsnLeuAspGlyVal 285
                                                                                                                                                                                                                                                                  724 TGGCATGACATCTTTCTCGCCAAC-------CGCGAGGCTGTCCTGCGC 765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       149 LeuLeu---ArgLeuValGluGlyGlyGlyArgProValArgLeuThrAlaGluGlu 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         106 AlaGluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAla 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              160 GTCGAGTTGGGCGTGGATCGTTGCGAAGACGACCTGGTGGCGGCCTTGCCGGGGCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      46 CysLeuValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAla 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86 ArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGlyMetAla 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66 AspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThr 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                ACACTCGATACATTTCGCAGCGACCTCGACGCCTTGCGCGACGCGGTCGATGCA-----
                                                                                                                                                                                                                                                                                                                                                                                                  GCATGGATCTGGGGCAGGCGATCCTGACGGATGTCGGCAGCGCCAAG---GGCAATGTG 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCGTCTGTCGCGAAGTGGTCGGGGTCGATCTC---GACCCGCAATCGCGCAAGCTGGCG 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gly---SerArgThrLeuVal---ValAspLeuValProProProGlyArgProAspAla 45
                                                                                                                                  -------GGGGATGGGCAC-----
                                                                                                                                                                                                                                                                                                                                    GGTTTCCGTGAT-----TTCACAAGAATCGCCGGAAGCGACCCGGTCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----ValThrArgAspGlyProGlyValThrAla 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGGGCCATCCGATTGCCGGCTCCGAGCAGCAGCGGGGTGGAAGCTTCCAACTCAGAGCTG 444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProAlaAlaGlyMetThrGlyArgProValAlaAlaVal------ 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACGTGATCCAGTTGGCGGTGCCGATCCTGGCCATGGAAAAAAGTGCTGGCCCGTCTGGCC 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCACGCGCGCCCGG
                                                                 861
                                                                                                                                  -CAATTGTTGGGCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           , 219
                                                                                                                                  846
                                                                                                                                                                                                                                                                                                                                  723
                                                                                                                                                                                                                                                                                                                                                                   225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        504
                                                                                                                                                                                                  819
```

(otgen) ynolg agog eirit

```
-MODBLE frame+ p21.model -DEV=x1h
-MODBLE frame+ p21.model -DEV=x1h
-Q=/egn2 1/USPTO spool h/US10089514/runat 04102005 105744 8043/app query.fasta_1.1621
-DB=EST -QFWT=fastap -SUFFIX-xst -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS=shite -START=1 -ENDE-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DCCALIGN=200 -THR SCORE=pct -THR MAX=100 -THR MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFWT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER=US10089514 @GGN_1 1.6050 @runat 04102005 105744 8043 -NCPU=6 -ICPU=3
-NO MMAP -LARGEQÜERY -NEG SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG
-DEV TIMEOUT=120 -WARN TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                         Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Minimum Match 0%
Maximum Match 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Command line parameters:
                                                                                                                                                                                                                                                                     ი
                                                                                                                                                                                                                                                                                                                              ŏ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
   202.5
1162.5
1162.5
1154.5
1154.5
1152.5
1146.5
                                                                                                                                                                                                                                                                                                                              Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                           Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-6
1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      34239544 seqs, 19032134700 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                October
      12.
9.09.
9.99.
9.44.
9.00.
9.00.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MSGFPRSVVVGGSGAVGGMF....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9b est 2:

9b est 2:

9b est 3:

9b est 3:

9b est 5:

9b est 6:

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb_est1:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5, 2005, 09:03:04; Search time 3522.58 Seconds (without alignments) 3479.464 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            first 45 summaries
   597
677
851
875
848
900
973
821
830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 5.1.6 (c) 1993 - 2005 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100%
   AG020402
AG020403
CCF823175
CC0023416
CCF823364
CF881643
CF682058
                                                                                                                                                                                                                                                                                                                              Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                            SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.5
7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .HCQELFRTLHRTDDEGEKDR 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         68479088
                                                                                             AG020402 |
AG020403 |
CF823705 |
CC0022117 |
CC0003446 |
CF823364 |
                                                                   CF881643
                                                                                                                                                                                                                                                                                                                              Description
CCAHL63TR
                                                                                          Homo sapi
Homo sapi
EST701087
EST818210
EST791781
EST700746
```

46 8.9 8.5 7 CF819790 CF819790 .5 8.9 1407 9 CL959323 .5 8.8 9407 9 ACG61086 41 8.6 1086 9 AY408045 41 8.6 1148 9 ACR595067 .5 8.6 1148 9 ACR595067 .5 8.5 820 6 CD616495 .5 8.5 984 5 BQ09122 .5 8.5 991 7 CF882803 .5 8.4 747 7 CF721128 .5 8.4 747 7 CF8721128 .5 8.3 2276 .5 8.4 747 7 CF8721128 .5 8.3 2276 .5 8.4 747 7 CF8721128 .5 8.1 1098 7 CF872139 .5 8.2 993 9 CL959849 .5 8.3 2276 .5 8.1 1122 5 BM920015 .5 8.1 1122 5 BM92013 .5 8.0 867 9 CC727568 .6 97 9 CC727568 .7 9 1207 5 BQ644802 .8 9 1408 9 CL960595 .8 9 1216 9 BC727969 .8 9 1207 5 BQ644802 .5 7.8 1309 3 CR723473 .5 8.0 862 9 AG092472 .5 7.8 1218 9 CL960595 .7 9 1207 5 BQ648802 .8 7.8 1758 9 CL960595 .8 7.8 1758 9 CL960595 .8 843 7 CF210859 .8 843 7 CF210859 .8 843 7 CF26580 .5 7.8 1758 9 CL960596 .5 7.8 1758 9 CL960596 .5 7.8 1056 4 BW54107 .5 7.8 1056 4 BW542107 .5 7.8 1056 7 CL507797 .5 CL507797 .5 CL507797 .5 CL507797 .5 CL507797 .5 CL507797	180	9 CL982230	2328		20	45	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 12 143.5 8.9 1407 9 CL959323 12 143.5 8.8 969 9 ACG61086 ACG61096 13 141 8.6 1086 9 AY408045 14 141 8.6 1086 9 AY408045 14 141 8.6 1145 9 ACG71167 16 139 8.5 820 6 CD616495 17 138.5 8.5 981 5 CF882803 18 138.5 8.5 984 5 BQ053468 20 138.5 8.5 991 5 BM920915 21 137.5 8.4 747 7 CF721128 22 137.5 8.4 747 7 CF721128 23 136.5 8.2 760 6 CB902069 24 134.5 8.2 993 9 CL958449 25 133.5 8.2 760 7 CF871839 26 133.5 8.2 760 7 CF871839 27 132.5 8.1 1122 5 BM928388 29 131.5 8.0 697 9 CC727568 30 131.5 8.0 697 9 CC727568 31 129.5 7.9 1216 8 BZ569478 31 129.5 7.9 1216 8 BZ569478 31 129 7.9 3405 9 CL965380 40 128 7.8 1955 9 AG082926 40 127.5 7.8 1056 9 CL965380 41 127.5 7.8 1056 9 CL965380 42 127.5 7.8 1056 9 CL965380 43 127.5 7.8 1056 9 CL965380 44 127.5 7.8 1056 9 CL965380 45 128.5 7.8 1056 9 CL965380 46 127.5 7.8 1056 9 CL965380 47 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 127.5 7.8 1056 9 CL965380 48 128 128 128 128 128 128 128 128 128 12	SAIL_788	CL50779	1402		N	44	a
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 12 143.5 8.9 9407 9 CL959323 12 143.5 8.8 969 9 ACG61066 ACG601950 13 141 8.6 1086 9 AY408045 14 141 8.6 1086 9 AY408045 14 141 8.6 11684 9 ACG71167 15 140.5 8.5 820 6 CD616495 17 138.5 8.5 8.5 981 5 EM920912 18 138.5 8.5 991 5 EM920915 20 138.5 8.4 747 7 CF721128 20 138.5 8.3 2176 3 CR603382 21 137.5 8.4 747 7 CF721128 22 137.5 8.2 760 6 CB902069 25 133.5 8.2 760 7 CF871839 26 133.5 8.2 760 7 CF871839 27 132.5 8.1 1122 5 EM928388 29 131.5 8.0 697 9 CC727568 30 129.5 7.9 1216 8 EX53949 31 130.5 8.0 1309 3 CR723473 32 130 8.0 865 5 EX372494 33 129.5 7.9 1216 8 EX53947 34 129 7.9 1216 8 EX53947 35 128 7.8 1315 9 AG082926 40 127.5 7.8 1056 9 CMS03300 41 127.5 7.8 1056 9 CMS03300 42 127.5 7.8 1056 9 CMS03300 43 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.8 128 7.	a a	BM54410	1062		2	43	Ω
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 9409 9 CL959323 CC952323 12 143.5 8.8 969 9 Ay408045 13 141 8.6 1086 9 Ay408045 14 141 8.6 1086 9 Ay408045 14 141 8.6 1184 9 Ay408045 17 138.5 8.5 8.6 1145 9 Ay408045 17 138.5 8.5 8.5 751 7 CF882803 18 138.5 8.5 80.5 6 CD91127 CD81495 19 138.5 8.5 991 5 BM920915 20 138.5 8.4 747 7 CF721128 21 137.5 8.4 747 7 CF721128 22 137.5 8.4 747 7 CF721128 23 136.5 8.2 993 9 CL95034649 24 134.5 8.2 993 9 CL950369 25 133.5 8.2 760 6 CB902069 26 133.5 8.1 1098 7 CC871839 27 132.5 8.1 1122 5 BM928388 29 131.5 8.0 697 9 CC727568 30 130.5 8.0 1309 3 CR723473 31 130.5 8.0 1309 3 CR723473 32 130 8.0 812 4 BG648802 33 129.5 7.9 1116 8 BZ569478 34 129 7.9 1207 5 BQ645487 35 128 7.8 149 9 CL960595 36 128.6 7.8 149 9 CL960595 37 128 7.8 149 9 CL965390 38 128 7.8 1904 4 BG757997 39 BG757997 30 128 7.8 1758 9 CL965300 30 CC9523629 30 128 7.8 1758 9 CL965300 31 127.5 7.8 1758 9 CL965300 31 127.5 7.8 1758 9 CL965300 31 127.5 7.8 1758 9 CL965300 31 127.5 7.8 1758 9 CL965300 31 127.5 7.8 1758 9 CL965300 31 127.5 7.8 1758 9 CL965300 31 127.5 7.8 1758 9 CL965300	AL293762 Tetraodon	CNS	1056		2	42	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 12 143.5 8.9 1407 9 CL959323 12 143.5 8.8 969 9 ACG61086 ACG61086 13 141 8.6 1086 9 AY408045 14 141 8.6 1168 9 AY408045 14 141 8.6 1168 9 AY408045 15 140.5 8.6 1145 9 ACG71167 16 139 8.5 8.6 CD616495 17 138.5 8.5 981 5 CF882803 18 138.5 8.5 991 5 EM920912 19 138.5 8.5 991 5 EM920915 20 138.5 8.4 747 7 CF676551 21 137.5 8.4 747 7 CF6721128 22 137.5 8.3 2176 3 CR603382 24 134.5 8.2 993 9 CL958449 25 133.5 8.2 760 6 CE902069 26 133.5 8.2 760 7 CF871839 27 132.5 8.1 1098 7 CK210037 28 133.5 8.2 760 7 CF871839 29 131.5 8.0 655 9 EM3223473 31 130.5 8.0 655 9 EM3223473 32 130.5 8.0 1309 3 CR723473 33 129.5 7.9 1116 8 EX569478 34 129 7.9 1207 5 EQ648802 37 128 7.8 1195 9 AG082472 37 128 7.8 1195 9 AG082366 40 128 7.8 1758 9 CL965380 CCF210859 38 128 7.8 1195 9 AG082366 CCF210859 39 128 7.8 1195 9 AG082366 CCF265380	AW661060 833001B03	AWE	724		2	41	റ
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 12 143.5 8.9 1407 9 CL959323 12 143.5 8.8 969 9 ACG61086 ACG61086 13 141 8.6 1086 9 AY408045 14 141 8.6 1168 9 AY408045 14 141 8.6 1145 9 ACG71167 16 139 8.5 820 6 CD616495 17 138.5 8.5 981 5 BQ053488 18 138.5 8.5 991 5 BM920912 19 138.5 8.5 991 5 BM920915 20 138.5 8.4 713 7 CF676551 CF721128 21 137.5 8.4 747 7 CF721128 CF721128 22 137.5 8.2 760 6 CB902069 24 134.5 8.2 760 7 CF871839 25 133.5 8.2 760 7 CF871839 26 133.5 8.2 760 7 CF871839 27 132.5 8.1 1122 5 BM928388 29 131.5 8.0 697 9 CC727568 30 131.5 8.0 865 9 BX372494 31 130.5 8.0 865 9 BX372494 31 130.5 8.0 865 9 BX372494 31 130.5 8.0 812 4 BG648802 33 129.5 7.9 1216 8 BZ569478 34 129 7.9 1207 5 BQ645487 35 128 7.8 843 7 CF2710859 36 128.5 7.9 1215 9 AG082926 37 128 7.8 1195 9 AG082926 38 7.8 1195 9 AG082926 38 67579926	CL965380 OsIFCC012		1758		128	40	a
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 9409 SC195323 CC195323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 14 141 8.6 1684 3 CR595067 CCR595067 15 140.5 8.6 1145 9 AG071167 AG071167 16 139 8.5 820 6 CD616495 CCP61495 17 138.5 8.5 751 7 CF828803 18 138.5 8.5 991 5 BM920915 20 138.5 8.5 991 5 BM920915 21 137.5 8.4 747 7 CF721128 22 137.5 8.4 747 7 CF721128 23 136.5 8.2 993 9 CCR603382 24 134.5 8.2 993 9 CCR603382 25 133.5 8.2 760 6 CB902069 CCR603382 26 133.5 8.2 760 6 CB902069 CCR603382 27 137.5 8.1 1122 5 BM928388 28 132.5 8.1 1122 5 BM928388 29 131.5 8.0 697 9 CC727568 30 130 8.0 865 9 CC727568 31 130 8.0 865 9 CC727568 31 130 8.0 865 9 CC727568 31 130 8.0 865 9 CC727568 31 130 8.0 812 4 BG648802 33 129 7.9 1216 8 B2569478 34 129 7.9 1216 B2569478 36 128 7.8 843 7 CC210859 37 128 7.8 843 7 CC210859 38 128 7.8 904 4 BG757997 BG755997	AG082926 Pan trogl		1195		128	39	Ω
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 94061086 AQ061086 13 141 8.6 1086 9 AY408045 14 141 8.6 1086 9 AY408045 14 141 8.6 1184 9 AQ071167 CR595067 15 140.5 8.6 145 9 AQ071167 CR595067 16 139 8.5 8.5 920 6 CD616495 17 138.5 8.5 85 6 CB909122 CB909122 19 138.5 8.5 991 5 BQ053468 20 138.5 8.5 991 5 BQ95915 21 137.5 8.4 747 7 CF721128 22 137.5 8.4 747 7 CF721128 23 136.5 8.2 760 6 CB909122 CCF721128 24 134.5 8.2 993 9 CL958449 CCF721128 25 133.5 8.2 760 6 CB90269 26 133.5 8.2 760 6 CB90269 27 132.5 8.1 1028 7 CF7211839 28 132.5 8.1 1122 5 BM928388 39 131.1 8.0 869 7 CK210037 31 130.5 8.0 130.9 3 CR723473 31 130.5 8.0 130.9 3 CR723473 31 130.5 8.0 812 4 BG648802 33 129 7.9 1207 5 BQ6595 34 129 7.9 1207 5 BQ6595 36 128.5 7.9 1215 9 AG092472 CF210859	BG757997 602715041		904	•	128	38	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 9409 9 CL959323 CC952323 12 143.5 8.9 9409 9 Ay408045 13 141 8.6 1086 9 Ay408045 14 141 8.6 11684 9 Ay408045 14 141 8.6 1145 9 AG071167 15 140.5 8.5 8.5 9609 122 17 138.5 8.5 805 6 CD616495 18 138.5 8.5 991 5 BM920912 29 138.5 8.4 713 7 CF678551 CCF82803 20 138.5 8.3 2176 3 CR603382 21 137.5 8.4 747 7 CF721128 CCF72128 22 137.5 8.2 760 6 CB93849 23 136.5 8.3 2176 3 CR603382 24 134.5 8.2 993 9 CL958449 25 133.5 8.2 760 7 CF871839 26 133.5 8.2 760 7 CF871839 27 132.5 8.1 1098 7 CF8728388 30 131.5 8.0 697 9 CC727568 31 130.5 8.0 1309 3 CC727568 31 130.5 8.0 1309 3 CC727568 32 130.5 8.0 1309 3 CC727568 33 129.5 7.9 1116 8 BZ569478 34 129 7.9 3405 9 CL960595 36 128.5 7.9 1215 9 AG092472 36 00053469	CF210859 CAB20007		843		128	37	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 9409 SC1953323 CC195323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 14 141 8.6 1086 9 AY408045 14 141 8.6 1145 9 AG071167 AG071167 15 140.5 8.5 820 6 CD616495 17 138.5 8.5 805 6 CB909122 19 138.5 8.5 991 5 BM920915 20 138.5 8.4 747 7 CF721128 CF92164 22 137.5 8.4 747 7 CF721128 CF72128 23 136.5 8.3 2176 3 CR603382 24 134.5 8.2 993 9 CR603382 25 133.5 8.2 760 6 CB902099 26 133.5 8.2 760 7 CF871839 27 132.5 8.1 1098 7 CF871839 28 132.5 8.1 1122 5 BM928388 CC727568 30 131.5 8.0 697 9 CC727568 31 130.5 8.0 1309 3 CR723473 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 32 130.5 8.0 1309 3 CR723494 33 129.5 7.9 1216 8 BZ569478 34 129 7.9 1207 5 BQ6454807 35 129 7.9 3405 9 CL960595 36 1207 5 CL960595 37 CL960595	AG092472 Pan trogl		1215	•	25	36	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 9409 9 CL959323 CC952323 12 143.5 8.8 969 9 ACG61086 ACG61086 13 141 8.6 1086 9 AY408045 14 141 8.6 1184 9 ACG71167 CCF595067 15 140.5 8.6 1184 9 ACG71167 ACG71169 17 138.5 8.5 85 6 CB909122 CB90923 18 138.5 8.5 984 5 BQ053468 20 138.5 8.5 991 5 BM920915 BM920915 21 137.5 8.4 747 7 CF725128 CF725128 22 137.5 8.4 747 7 CF725128 CCF725128 23 136.5 8.2 293 9 CL958449 25 133.5 8.2 2760 6 CB902069 26 133.5 8.2 760 6 CB902069 27 132.5 8.1 1098 7 CF721189 28 132.5 8.1 1098 7 CF72108 29 131.5 8.0 897 CC727568 29 131.5 8.0 697 9 CC727568 31 130.5 8.0 1309 3 CR723473 31 130.5 8.0 1309 3 CR723473 32 129 7.9 1216 8 BZ559448 BQ645487	CL960595 OsIFCC004		3405		129	3 5	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 12 143.5 8.9 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 14 141 8.6 1168 9 AY408045 14 141 8.6 1145 9 AG071167 15 140.5 8.5 8.5 98.5 751 7 CF882803 17 138.5 8.5 991 5 EM920912 19 138.5 8.5 991 5 EM920915 20 138.5 8.4 743 7 CF721128 CF73251 22 137.5 8.4 747 7 CF721128 CF73252 24 134.5 8.2 993 9 CL958449 25 133.5 8.2 760 6 CE90382 26 133.5 8.2 760 7 CF871839 27 132.5 8.1 1098 7 CK210037 28 131.5 8.1 1098 7 CK210037 29 131.5 8.0 697 9 CC727568 30 130 8.0 865 5 EX372494 31 130.5 8.0 1309 3 CR723473 32 130.5 7.9 1116 8 EZ569478 BCG6582803	BQ645487 AGENCOURT		1207	•	129	34	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 9409 GC195323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 14 1.41 8.6 1684 3 CR595067 CCR595067 15 140.5 8.5 820 6 CD616495 17 138.5 8.5 85 751 7 CF82803 18 138.5 8.5 991 5 BM920915 20 138.5 8.5 991 5 BM920915 21 137.5 8.4 747 7 CF721128 22 137.5 8.4 747 7 CF721128 23 136.5 8.2 993 9 CR603382 24 134.5 8.2 993 9 CR603382 25 133.5 8.2 760 6 CB902099 26 133.5 8.2 760 7 CF871839 27 132.5 8.1 1122 5 BM928388 29 131.5 8.0 697 9 CC727568 30 130 8.0 8139 3 CR723473 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 31 130.5 8.0 1309 3 CR723494 32 130 8.0 812 4 BG644802	BZ569478 pacs2-164		1116		10	ω G	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 14 1.41 8.6 1184 9 AG071167 15 140.5 8.6 1184 9 AG071167 16 139 8.5 820 6 CD616495 17 138.5 8.5 85 6 CB909122 19 138.5 8.5 984 5 BQ053468 20 138.5 8.5 991 5 BM920915 21 137.5 8.4 747 7 CF725128 22 137.5 8.4 747 7 CF725128 23 136.5 8.3 2176 3 CR603382 24 134.5 8.2 993 9 CL958449 25 133.5 8.2 760 6 CB902069 26 133.5 8.2 760 6 CB902069 27 132.5 8.1 1098 7 CF72108 28 132.5 8.1 1098 7 CF72108 30 131 8.0 865 5 BX372444 CC7727568 BX3724473 CC7725473	BG648802 EST510421		812		130	32	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.8 91407 9 CL959323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 14 141 8.6 1086 9 AY408045 15 140.5 8.8 145 9 AG95167 CR959067 16 139 8.5 8.6 1145 9 AG971167 AG971167 17 138.5 8.5 751 7 CF882803 18 138.5 8.5 984 5 CD903122 CP802803 19 138.5 8.5 994 5 EM920912 20 138.5 8.5 991 5 EM920915 21 137.5 8.4 747 7 CF721128 CF721128 22 137.5 8.4 747 7 CF721128 23 136.5 8.2 993 9 CL958449 24 134.5 8.2 993 6 CR603382 25 133.5 8.2 760 7 CF871839 27 132.5 8.1 1098 7 CK210037 28 131.5 8.1 1098 7 CK210037 28 131.5 8.1 1122 5 EM928388 29 131.5 8.1 1128 EM3272494 20 131 8.0 865 5 EX372494 21 131 8.0 865 5 EX372494	CR723473 Tetraodor		1309	•	\sim	31	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 CL959323 12 143.5 8.8 969 9 AG061086 AQ661086 13 141 8.6 1086 9 AY408045 AY408045 14 141 8.6 1145 9 AC071167 AC795067 15 140.5 8.6 1145 9 AG071167 AG071167 16 139 8.5 820 6 CD616495 CD61495 17 138.5 8.5 751 7 CF882803 CF902122 19 138.5 8.5 805 6 CB093468 BQ053468 BQ053468 BQ053468 BQ053468 BM920915 CF678551 CF678551 CF678551 CF678551 CF721128 CF721128 CF721128 CF721128 CF721128 CF721128 CF721128 CF675551 CF678551 CF678551 CF67	BX372494 BX372494		865		131	30	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 14 1.41 8.6 1086 9 AY408045 14 1.41 8.6 1184 3 CR595067 CR595067 15 140.5 8.6 1184 9 AG071167 AG071167 16 139 8.5 820 6 CD616495 CF82803 18 138.5 8.5 85 6 CB909122 CB909122 19 138.5 8.5 984 5 BQ053468 BQ053468 20 138.5 8.5 991 5 BM920915 BM920915 21 137.5 8.4 747 7 CF721128 22 137.5 8.4 747 7 CF721128 23 136.5 8.3 2176 3 CR603382 24 134.5 8.2 993 9 CL958449 25 133.5 8.2 760 6 CB902069 26 133.5 8.2 760 6 CB902069 27 132.5 8.1 1098 7 CK210037 28 132.5 8.1 1122 5 BM928388 BM9223388	CC727568 OGUCG36TV	-	697	•		29	a
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 CL959323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 AY408045 14 141 8.6 11684 3 CR595067 AG071167 15 140.5 8.6 1145 9 AG071167 AG071167 15 140.5 8.6 1145 9 AG071167 AG071167 16 139 8.5 820 6 CD616495 CD614495 17 138.5 8.5 951 7 CF882803 CF802803 18 138.5 8.5 905 CB9099122 CB909122 19 138.5 8.5 994 S BM920915 BM920915 21 137.5 8.4 747 7 CF676551 CF676	BM928388 AGENCOURT		1122			28	ი
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 CL959323 12 143.5 8.8 969 9 CR061006 AQ601108 13 1.41 8.6 1086 9 AY408045 AY408045 14 1.41 8.6 11684 9 AY408045 AY408045 14 1.41 8.6 1145 9 AC0711167 AG071167 15 140.5 8.6 1145 9 AG071167 AG071167 16 1.39 8.5 8.5 751 7 CF082803 CF882803 17 138.5 8.5 805 6 CD616495 CF882803 18 138.5 8.5 805 6 CD693428 BQ053468 19 138.5 8.5 991 5 BM920915 CF872551 21 137.5 8.4 713	CK210037 FGAS02182		1098			27	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 CL959323 12 143.5 8.8 969 9 AG061006 AV408045 13 141 8.6 1086 9 AV408045 AV408045 14 141 8.6 1168 9 AV408045 CF859067 CF859067 15 140.5 8.6 1145 9 AG071167 AG071167 AG071167 16 139 8.5 820 6 CD616495 CD61495 17 138.5 8.5 751 7 CF882803 CF882803 18 138.5 8.5 805 6 CB909122 CP9023468 20 138.5 8.5 984 5 BQ053468 BM920915 21 137.5 8.4 713 7 CF7676551 CF721128 23 136.5 8.3 <td>CF871839 tric028xc</td> <td></td> <td>760</td> <td></td> <td></td> <td>26</td> <td></td>	CF871839 tric028xc		760			26	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 CL959323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 AY408045 14 141 8.6 1684 3 CR595067 AG071167 15 140.5 8.6 1145 9 AG071167 AG071167 15 140.5 8.6 1145 9 AG071167 AG071167 16 139 8.5 751 7 CF82803 CF82803 17 138.5 8.5 751 7 CF82803 CF828203 18 138.5 8.5 980 5 CB093122 CP828203 20 138.5 8.5 984 5 BQ053468 BM920915 21 137.5 8.4 713 7	CB902069 tric028xc		760	•		25	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 CL959323 12 143.5 8.8 969 9 CG61006 AG061086 13 141 8.6 1086 9 AY408045 AY408045 14 141 8.6 11684 3 CR595067 CC595067 15 140.5 8.6 1145 9 AG071167 AG071167 16 139 8.5 820 6 CD616495 CD61495 CD61491 17 138.5 8.5 751 7 CF882803 CF882803 18 138.5 8.5 805 GB909122 CB909122 19 138.5 8.5 984 5 B0953468 B0053468 20 138.5 8.5 991 5 BM920915 CB909122 21 137.5 8.4 747 7	CL958449 OsIFCC001	-	993			24	ი
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 14 141 8.6 1086 9 AY408045 14 141 8.6 1184 9 AG71167 15 140.5 8.6 1145 9 AG71167 16 139 8.5 820 6 CD616495 17 138.5 8.5 751 7 CF82803 18 138.5 8.5 751 7 CF82803 18 138.5 8.5 991 5 BA9920915 21 137.5 8.4 747 7 CF721128 22 137.5 8.4 747 7 CF721128 21 CF721128	CR603382 full-leng		2176			23	a
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 CL959323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AV408045 AV408045 14 141 8.6 1684 3 CR595067 AG071167 15 140.5 8.6 1145 9 AG071167 AG071167 16 139 8.5 820 6 CD616495 CD616495 17 138.5 8.5 751 7 CF882803 CF802803 18 138.5 8.5 98.5 6 CB909122 CB909122 19 138.5 8.5 984 SG053468 BQ053468 20 138.5 8.5 991 5 BM920915 BM920915 21 137.5 8.4 713 7 CF676551	CF721128 CCAH722TR		747	•		22	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 14 141 8.6 1684 3 CR595067 CC959067 15 140.5 8.6 1145 9 AG071167 AG071167 16 139 8.5 820 6 CD616495 CC852803 17 138.5 8.5 751 7 CF882803 18 138.5 8.5 984 5 CB909122 CF892803 20 138.5 8.5 984 5 BM920915 BM920915	CF676551 CCAC141TR		713	•		21	
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 CL959323 12 143.5 8.8 969 9 AG061086 AQ661086 13 141 8.6 1086 9 AY408045 AY408045 14 141 8.6 1684 3 CR595067 CR595067 15 140.5 8.6 1145 9 AG071167 AG071167 16 139 8.5 820 6 CD616495 CD61495 17 138.5 8.5 751 7 CF882803 CF882803 18 138.5 8.5 984 5 BQ053468 BQ053468	BM920915 AGENCOURT		991	•		20	a
10 146 8.9 859 7 CF819790 CF819790 11 145.5 8.9 1407 9 CL959323 CL959323 12 143.5 8.8 969 9 AG061086 AG061086 13 141 8.6 1086 9 AY408045 AY408045 14 141 8.6 1684 3 CR595067 CR595067 15 140.5 8.6 1145 9 AG071167 AG071167 16 139 8.5 820 6 CF882803 CF882803 17 138.5 8.5 751 7 CF882803 CF882803 CF882803 18 138.5 8.5 805 6 CB909122 CB909122	BQ053468 AGENCOURT		984			19	ဂ
10 146 8.9 859 7 CF819790 CF819790 ESTV 11 145.5 8.9 1407 9 CL959323 CL959323 OST1 12 143.5 8.8 969 9 AG061086 Pan 13 141 8.6 1086 9 AY408045 AY408045 Homm 14 141 8.6 1684 3 CR595067 CR595067 full 15 140.5 8.6 1145 9 AG071167 Pan 16 139 8.5 820 6 CD616495 17 138.5 8.5 751 7 CF882803 CF882803 tric	CB909122 tric087xe		805			18	
10 146 8.9 859 7 CF819790 CF819790 ESTV 11 145.5 8.9 1407 9 CL959323 CL959323 OSL71 12 143.5 8.8 969 9 ACG61086 ACG61086 Pan 13 141 8.6 1086 9 AY408045 AY408045 Home 14 141 8.6 1684 3 CK8595067 CK8595067 full 15 140.5 8.6 1145 9 AG071167 Pan 16 139 8.5 820 6 CD616495 CD616495 560°	tric		751	•		17	
10 146 8.9 859 7 CF819790 CF819790 ESTV 11 145.5 8.9 1407 9 CL959323 CL959323 OSII 12 143.5 8.8 969 9 AGG61086 Pan 13 141 8.6 1086 9 AY408045 AY408045 Home 14 141 8.6 1684 3 CK595067 CK595067 full 15 140.5 8.6 1145 9 AGG71167 Pan	560		820		139	16	
10 146 8.9 859 7 CF819790 CF819790 ESTV 11 145.5 8.9 1407 9 CL959323 CL959323 OBJ 12 143.5 8.8 969 9 AG061086 Pan 13 141 8.6 1086 9 AY408045 14 141 8.6 1684 3 CR595067 CR595067 full	Pan		1145		4	15	a
10 146 8.9 859 7 CF819790 CF819790 ESTV 11 145.5 8.9 1407 9 CL959323 CL959323 OSTI 12 143.5 8.8 969 9 AG061086 AG061086 Pan 13 141 8.6 1086 9 AY408045 AY408045 AY408045 Homm	full		1684	•	141	14	ဂ
10 146 8.9 859 7 CF819790 CF819790 EST(11 145.5 8.9 1407 9 CL959323 CL959323 OBII 12 143.5 8.8 969 9 AG061086 AG061086 Pan	Homo		1086		141	13	ဂ
10 146 8.9 859 7 CF819790 CF819790 EST(11 145.5 8.9 1407 9 CL959323 CL959323 OBII	Pan		969		4.	12	a
0 146 8.9 859 7 CF819790 CF819790 EST	1180		1407	•	4	11	ი
	EST		859	•	146	10	

ALIGNMENTS

TITLE JOURNAL REFERENCE ACCESSION VERSION KEYWORDS RESULT 1 AG020402/c DEFINITION FEATURES REFERENCE SOURCE Snoo JOURNAL TITLE AUTHORS AUTHORS ORGANISM genomic survey sequence.
AG020402 Submitted (16-OCT-1999) Masahira Hattori, RIKEN Genomic Sciences Center(GSC) c/o Kitasato University; 1-15-1 Kitasato, Sagamihara, Kanagawa 228-8555, Japan (E-mail:hattori@hgc.ims.u-tokyo.ac.jp, Tel:81-42-778-9923, Fax:81-42-778-9924) Hattori,M., Fujiyama,A., Ishii,K., Toyoda,A., Park,H.-S., Yada,T., Watanabe,H. and Sakaki,Y. Homo sapiens genomic DNA, chromosome 21q Published Only in Database (1999) 2 (bases 1 to 597) Hattori,M., Fujiyama,A., Ishii,K., Toyoda,A., Park,H.-S., Yada,T., Watanabe,H. and Sakaki,Y. Eukaryota; Metazoa; Chordata; Crániata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. Homo sapiens Direct Submission Homo sapiens (human) AG020402.1 AG020402 1. .597 /mol_type="genomic DN /db_xref="taxon:9606" /organism="Homo sapiens" /mol type="genomic DNA" clone="B53P19_BB042(Fw).ab1" /map="21q" chromosome="21" GI:6046346 597 bp 21**q** bp DNA linear GSS 09-JAN-2003
region, clone: B53P19_BB042(Fw).ab1, Taylor, T., Taylor, T., Sagamihara,

```
RESULT 2
AG020403
LOCUS
                                                                                                           SOURCE
ORGANISM
                                                              REFERENCE
                                                                                                                                                                                                                                                                                뭐
                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity: Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-6 (1-322) x AG020402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                         KEYWORDS
                                                                                                                                                           VERSION
                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                        DEFINITION
   TITLE
JOURNAL
                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             No.:
                                                                                                                                                                                                                                                                                                               204
                                                                                                                                                                                                                                                                                                                                                                           184
                                                                                                                                                                                                                                                                                                                                                                                                                                     164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        595
                                                                                                                                                                                                                                                                                  58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28
Hattori,M., Fujiyama,A., Ishii,K., Toyoda,A., Park,H.-S., Yada,T., Watanabe,H. and Sakaki,Y. Homo sapiens genomic DNA, chromosome 21q Published Only in Database (1999)
                                                                                                                                                                      Homo sapiens genomic DNA, genomic survey sequence. AG020403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                           Homo sapiens
                                                                                                                                             SSD
                                                                                                                         Homo sapiens (human)
                                                                                                                                                         AG020403.1 GI:6046347
                                                                                                                                                                                                                      AG020403
                                                                                                                                                                                                                                                                                                                                                               LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrAla-----LeuleuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                TCTTCGCCGATTTACCGCCTTGAGCTGGCGATGGTCGGGCGACTG
                                                                                                                                                                                                                                                                                                  AlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgVal
                                                                                                                                                                                                                                                                                                                                                                                                                                    ThralaGluGluHisAspargThrThralaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAAGCATACCAATGGTTTCTGGAGCAAATTCAGGTCTGGGGCGCTCGGCTGCATCGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACAGCGGTAGCCTGGCAAAGCAAGTT-----GTGGTCTGGTGTGATGGACGTAAACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGCTGGTGGCGCATGATGGTCCGGTG-----CTGGGGCTACACCCGATGTTCGGTCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                           TTTGCTTACGGGCTGCACCTGGCAGAAGAAAATGTTCAGCTTGAGCAACTTCTGGCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                       AGCGCCGTCGAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCGAAA----GATTGTATTCTGGTCGATCTGGCATCAGTGAAAAATGGGCCATTACAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly---MetAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGATTGTTAGTGTGCCAATCCACGTTACTGAGCAAGTTATTGGCAAATTACCGCCTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGCTGATATTGTTGCC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGTTATCAGGTGCGGATTCTGGAG------CAACATGACTGGGATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlySerArgThrLeuValValAspLeuValProProFroGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTATCGTCGGCGGTGGCGGTCAGATGGGACGCCTGTTCGAGAAGATGCTGACCCTCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.81e-08
202.50
49.30%
30.23%
12.39%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-597)
                                                                                                                                                                                                   21q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps:
                                                                                                                                                                                                   region,
                                                                                                                                                                                                                   DNA
                                                                                                                                                                                                      clone:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  597
65
41
84
25
                                                                                                                                                                                                  inear GSS 09-JAN-2003
B53P19_BB042(Rv).ab1,
                                                                                                                                                                                                                                                                                                           218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GATGCCGGAATG
                                                                                                                                                                                                                                                                                                                                           59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              464
                                                                                                                                                                                                                                                                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                              밁
                                                    Ś
                                                                                         밁
                                                                                                                     Ś
                                                                                                                                                      밁
                                                                                                                                                                              δ
                                                                                                                                                                                                                B
                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-089-514-6 (1-322)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŏ
w
                              638
                                                                                                                                                                                     164
                                                                                                                                                                                                                   458
                                                                                                                                                                                                                                                                              404
                                                                                                                                                                                                                                                                                                                                                                       107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  233
                                                           204
                                                                                                                                                                                                                                                                                                                                                                                                     293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                                                                    88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             68 ValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    28 GlySerArgThrLeuValValAspLeuValProProGlyArgProAspAlaCysLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 (bases 1 to 677)

Hattori,M., Fujiyama,A., Ishii,K., Toyoda,A., Taylor,T.,
Park,H.-S., Yada,T., Watanabe,H. and Sakaki,Y.

Direct Submission
Submitted (16-OCT-1999) Masahira Hattori, RIKEN Genomic Sciences
Center (GSC) c/o Kitasato University; 1-15-1 Kitasato, Sagamihara,
Kanagawa 228-8555, Japan (E-mail:hattori@hgc.ims.u-tokyo.ac.jp,
Tel:81-42-778-9923, Fax:81-42-778-9924)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 ValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAla
                                                                                                                                                                                                                                                                                                                                       CCGAAA - - - GATTGTATTCTGGTCGATCTGGCATCAGTGAAAAATGGGCCATTACAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                        MetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly----MetAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValGlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGTTATCAGGTGCGGATTCTGGAG------
                                                         AlaProProProHisGlnValLeuLeuAlaLeuLeu
                                                                                        TTTGCTTACGGGCTGCACCTGGCAGAAGAAATGTTCAGCTTGAGCAACTTCTGGCGCTC
                                                                                                                                                                              ThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeu
                                                                                                                                                                                                                                           ThrAla-----LeuLeuArgLeuValGluGlyGlyGlyArgProValArgLeu
                                                                                                                                                                                                                                                                             GACAGCGGTAGCCTGGCAAAGCAAGTT-----GTGGTCTGGTGTGATGGACGTAAACCG
                                                                                                                                                                                                                                                                                                       AlaAlaGlyMetThrGlyArgProValAlaAlaValThrArgAspGlyProGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCGGCTGATATTGTTGCC-----
                              TCTTCGCCGATTTACCGCCTTGAGCTGGCGATGGTC
                                                                                                                     LeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeuAlaAlaThr
                                                                                                                                                      AGCGCCGTCGAGCACGATCAGAATATGGCGTTTATTCAGGCACTGCGCCACTTTGCTACT
                                                                                                                                                                                                                GAAGCATACCAATGGTTTCTGGAGCAAATTCAGGTCTGGGGCGCTCGGCTGCATCGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGATTGTTAGTGTGCCAATCCACGTTACTGAGCAAGTTATTGGCAAATTACCGCCTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTATCGTCGGCGGTGGCGGTCAGATGGGACGCCTGTTCGAGAAGATGCTGACCCTCTCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /chromosome="21"
/map="21q"
/clone="B53P19_BB042(Rv).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Homo sapiens"
/mol_type="genomic DNA"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . .677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.71e-07
196.50
49.06%
30.19%
12.02%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               x AG020403 (1-677)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . ab1 "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----CAACATGACTGGGATCGA
                              673
                                                         215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               677
64
40
83
25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATGCCGGAATG
```

183

577

163 457 146

517

106 292 87 232 67

403 126 349 47

160

637 203

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment & Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity: Query Match:
DB:
                                                         문
                                                                                        გ
                                                                                                                          밁
                                                                                                                                                           ঠ
                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
                     S
                                                                                                                                                                                                                                                                   뭐
                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-6 (1-322) x CF823705 (1-851)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scores:
                                                                                                                          431
                                                                                                                                                                                               371
                                                                                                                                                                                                                                                                                                                                         260
                                                       485
                                                                                                                                                                                                                                                                   320
                       99
                                                                                        79
                                                                                                                                                            59
                                                                                                                                                                                                                                 4
                                                                                                                                                                                                                                                                                              25 ArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGlyArgProAsp
                                                                                                                                                                                                                                                                                                                                                                        տ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Coccidioides posadasii
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;
Onygenales; mitosporic Onygenales; Coccidioides.
1 (bases 1 to 851)
Gardner, M.J. and Cole, G.T.
Analysis of gene expression in Coccidioides posadasii mycelia spherules via expressed sequence tags
Unpublished (2003)
Other_ESTs: EST701086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CF823705 851 bp mRNA linear EST 01-API EST701087 Coccidioides posadasii saprobic phase cDNA library, 4 kb Coccidioides posadasii cDNA clone CIDAN17 5' end, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Gardner MJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CF823705.1 GI:45929762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequence.
CF823705
                                                                                                                                                                                                                                                                                                                                                          ProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeu
   SerValArgThrGlyMetAlaAlaGluLeuAlaAla-----
                                                                                                                          GTCTCC-----AGAGTTAGCGACTACATTATCTACAGTGTAGAGGCAGAAGCCATCAAC
                                                                                                                                                           AlaAlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeu
                                                                                                                                                                                                                                                                                                                                    CCAAGATCCATTGGGATCATTGGGATGGGTGATATGGGAAGGATGTATGCTCAGCGCTTG
                                                      AAAATTGTGGCGGAGTATGGCCCATCAACCAAAGTTGGCGCGATTGTTGGTGGTCAAACT
                                                                                                                                                                                             ACACTGAGGCAAGAATTCATATCCCATACAAATATCAATATTACCCAACGGACATTTG
                                                                                                                                                                                                                             AlaCysLeuValGlyAspValThr-------AlaProGlyProGluLeu
                                                                                      LysAlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Institute for Genomic Research
2 Medical Center Drive, Rockville,
: 301 838 3519
: 301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    primer: M13 Reverse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gardner@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /dev_stage="saprobic phase (mycelia)"
/lab_host="E. coli DH10B, Tl phage resistant"
/clome_lib="Coccidioiddes posadasii saprobic phase cDNA
library, 2 to 4 kb"
/note="Vector: pExpress 1; Site_1: Not I; Site_2: Eco RV;
Coccidioides posadasii saprobic phase cDNA library, size
fractionated cDNA 2 to 4 kb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Coccidioides posadasii"
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:199306"
/clone="CIDAN17"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'strain="C735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.000364
162.50
44.72%
30.15%
9.94%
                                                                                                                                                                                                                                                                -----TGGAGCATTAATGCCTGCGACAAACCTACCAATTATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                         85
85
85
85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           posadasii mycelia
HisAlaProGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST 01-APR-2004
library, 2 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                        98
                                                                                                                                                         78
                                                                                                                                                                                           430
                                                                                                                                                                                                                                                                                                  44
                                                                                                                                                                                                                                                                                                                                    319
                                                                                                                                                                                                                               58
                                                                                                                                                                                                                                                                                                                                                                      24
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 4
CO022117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
DEFINITION
                                  Ś
 뭐
                                                                      US-10-089-514-6 (1-322)
                                                                                                                                            Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                    Pred. No.
                                                                                                                                                                                                                   Alignment
                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                              Match:
 295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       135 ValAlaAlaValValThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 545 TCCTGCAAA-----GCCCCAGAGCTGGCTGCTTTTGAGAACCATCTTCCTGGGGAC 595
                                                                                                                                             Similarity:
                                  ທ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Fungi; Ascomycota; Peżizomycotina; Eurotiomycetes; Onygenales; mitosporic Onygenales; Coccidioides.

1 (bases 1 to 875)

Gardner, M.J. and Cole, G.T.

Analysis of gene expression in Coccidioides posadasii mycelia and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9712 Medical Center Drive,
Tel: 301 838 3519
Fax: 301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The Institute for Genomic Research
9712 Medical Center Drive, Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (2003)
Other_ESTs: EST818209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CO022117 875 bp mRNA linear EST 10-JUN-2004
EST818210 Coccidioides posadasii saprobic phase cDNA library,
greater than 4kb Coccidioides posadasii cDNA clone CIBCR06 5' end,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Seq primer: M13 Reverse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: gardner@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Coccidioides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CO022117.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Gardner MJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     spherules via expressed sequence tags
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Coccidioides posadasii
CCAAGATCCATTGGGATCATTGGGATGGGTGATATGGGAAGGATGTATGCTCAGCGCTTG
                    ProArgSerValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATCACAGCGGACACTCAGGCCGTGACGCATGCTGCATTTTTGAGTATGGGAACTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAla 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTGGTCTTGATTCAGCACAGA-----GCCTCTGACGAGAGCCTCAGGTTTGTTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGAGATTATTTCGGTTCATTCCCTACATGGACCGAACGTGAACCCTAAAGGACAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValGlnHisValGlyLeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGTGTGTTTGCGTCTTTCGAATCCAAATACGTTTACCTCACCGGGGAGAGGCATGATCGA
                                                                                                                                                                                                                                                                 /dev_stage="saprobic pháse (mycelia)"
/lab host="E. coli DH10#, T1 phage resistant"
/clome_lib="Coccidioides posadasii saprobic phase cDNA
/library, greater than 4kb"
/note="Vector: pExpress 1; Site_1: Not T; Site_2: Eco RV;
Coccidioides posadasii saprobic phase cDNA library, size
fractionated cDNA > 4 kb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Coccidioides
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:199306"
/clone="CIBCR06"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----GlyGlyGlyArgProValArgLeuThrAlaGluGluHisAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                           /strain="C735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                L. .875
                                                                      x CO022117
                                                                                                             0.000377
162.50
44.72%
30.15%
9.94%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:48546838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               posadasii
                                                                       (1-875)
                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                         Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             posadasii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₹
                                                                                                        875
29
85
25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     823
                                  24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             766
```

```
RESULT 5
CO003446
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                          JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25
                                                                                                                                                       Email:
Seq pri
                                                                                                                                                                                    9712
Tel:
Fax:
                                                                                                                                                                                                            Other ESTs: EST791780
Contact: Gardner M
The Institute for Genomic Research
7712 Medical Center Drive, Rockvil
                                                                                                                                                                                                                                                                    1 (bases 1 to 848)
Gardner,M.J. and Cole,G.T.
Analysis of gene expression in Coccidioides spherules via expressed sequence tags
Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                         848 bp mRNA linear EST 09-JUN-2004
EST791781 Coccidioides posadasii spherule cDNA library, 0.4 to 2.3
kb Coccidioides posadasii cDNA clone CIEAD69 5' end, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                        Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes; Onygenales; mitosporic Onygenales; Coccidioides.
                                                                                                                                                                                                                                                                                                                                                                    Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                                                 CO003446.1 GI:48510335
EST.
                                                                                                                                                                                                                                                                                                                                                                                 Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCACAGCGGACACTCAGGCCGTGACGCATGCTGCATTTTTGAGTATGGGAACTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValGlnHisValGlyLeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerValArgThrGlyMetAlaAlaGluLeuAlaAla------HisAlaProGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTCTCC----AGAGTTAGCGACTACATTATCTACAGTGTAGAGGCAGAAGCCATCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCCAAGCGGGT-----TGGAGCATTAATGCCTGCGACAAACCTACCAATTATGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValAlaAlaValValThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTGGAGATTATTTCGGTTCATTCCCTACATGGACCGAACGTGAACCCTAAAGGACAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCTGCAAA-----GCCCCAGAGCTGGCTGTTTTGAGAACCATCTTCCTGGGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LysalaValalaProValThrArgLeuMetArgProGlyalaLeuLeuAlaAspThrLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaAlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACACTGAGGCAAGAATTCATATCCCATACAAATATCAATATTACCCAACGGACATTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaCysLeuValGlyAspValThr------AlaProGlyProGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ArgGluAlaGlySerArgThrLeuValValAspLeuValProProProGlyArgProAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGTGTGTTTGCGTCTTTCGAATCCAAATACGTTTACCTCACCGGGGAGAGGCATGATCGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGGTCTTGATTCAGCACAGA------GCCTCTGACGAGAGCCTCAGGTTTGTTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAAATTGTGGCGGAGTATGGCCCATCAACCAAAGTTGGCGCGATTGTTGGTGGTCAAACT
                                                                                                                                                        primer: M13 Reverse
                                                                                                                                                                                    301 838 3519
301 838 0208
                                                                                                                                                                       gardner@tigr.org
    /dev_stage="spherules"
/lab_host="5. coli DH10B, T1 phage resistant"
/clone_lb="Coccidioides posadasii spherule cDNA library,
0.4 to 2.3 kb"
                                                           /db_xref="taxon:199306'
/clone="CIEAD69"
                                                                                                              organism="Coccidioides"
                                                                                                                                          Location/Qualifiers
                                                                                       strain="C735"
                                                                                                                                 . . 848
                                                                                                    type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -GlyGlyGlyArgProValArgLeuThrAlaGluGluHisAspArg
                                                                                                                                                                                                               Rockville,
                                                                                                               posadasii"
                                                                                                                                                                                                               3
                                                                                                                                                                                                               20850, USA
                                                                                                                                                                                                                                                                                               posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                    EST 09-JUN-2004
1ry, 0.4 to 2.3
                                                                                                                                                                                                                                                                                               mycelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           858
                                                                                                                                                                                                                                                                                                  and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           78
 VERSION
KEYWORDS
SOURCE
                                                                                                  RESULT 6
CF823364
LOCUS
                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                        밁
                                                                                                                                                                               S
                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                             ACCESSION
                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ.
                                                                                                                                                                                                                                                                                                                           506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               344
                                                                                                                                                        667
                                                                                                                                                                                                                                                                                                                                                       203
                                                                                                                                                                                                                                                                                                                                                                                  464
                                                                                                                                                                                                                                                                                                                                                                                                            190
                                                                                                                                                                                                                                                                                                                                                                                                                                        404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122
CF823364.1 G
EST.
Coccidioides J
                                                                    CF823364 900 bp mRNA linear EST 01-APR-2004 EST700746 Coccidioides posadasii saprobic phase cDNA library, 2 to 4 kb Coccidioides posadasii cDNA clone CIDAL10 5' end, mRNA
                                           cr823364
                              GI:45929421
posadasii
```

/note="Vector: pExpress 1; Site_1: Not I; Site_2: Coccidioides posadasii spherule cDNA library, 0.4 kb" t ECO N

```
US-10-089-514-6 (1-322) x CO003446
----TAAGCGCAGAGTCAAGGCTGCCAGGGCGGCTGT 699
                                      AspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAla-----
                                                                                                                                     LeuAlaGluAlaLeuArgSer---PheAlaAlaLeuValGlyAspAspProAspArgAla
                                                                                                                                                                                                                                                                                                                                                                         CAATTCCCGTGGGAGATATCTCGATATGTGGGTGGAATTGAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAGCACAGA - - - - - - - GCCTCTGACGAGAGCCTCAGGTTTGTTGAAAAGTGTGTTTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGlu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCGGTTCATTCCCTACATGGACCGAACGTGAACCCTAAAGGACAGCCGTTGGTCTTGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyMetAlaAlaGluLeuAlaAla------HisAlaProGly---ValGlnHisVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGTATGGCCCATCAACCAAAGTTGGCGCGATTGTTGGTGGTCAAACTTCCTGCAAA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAla
                                                                                              TATGCAGAATCAGTGACCGAACTATTCAAATTGATGTTAGGCGGCCATCGTGATGA-GCT
                                                                                                                                                                                      TGGCATGTCTATGCTGGACTTGCGATATTGÀACCCTGCTGCCAAAAGACAGATCCGTCAG
                                                                                                                                                                                                                                 ProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAla
                                                                                                                                                                                                                                                                                  -----AACGTCAAAATTAATATCACATTACGCATCTACTCGAATAAG
                                                                                                                                                                                                                                                                                                                              ThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTCAGGCCGTGACGCATGCTGCATTTTTGAGTATGGGAACTGCGTGGCAAGCCAATAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCTTTCGAATCCAAATACGTTTACCTCACCGGGGAGAGGCATGATCGAATCACAGCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyGlyGlyGlyArgProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAla 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyLeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaVal 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGAGTTAGCGACTACATTATCTACAGTGTAGAGGCCAGCAAGACCAACAAATTGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                       -----GlyValAspValArgAlaLeuAlaArgLeu-----GlyValAspValArgAlaLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --- GCCCCAGAGCTGGCTTTTGAGAACCATCTTCCTGGGGACGTGGAGATTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                154.50
41.70%
28.09%
9.45%
7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .00185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1-848)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                848
66
32
94
44
                                              276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             118
                                                                                                                                                                                                                                                                                  547
                                                                                                                                                                                                                                                                                                                                                                                                                          202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82
                                                                                              666
                                                                                                                                          261
                                                                                                                                                                                      607
                                                                                                                                                                                                                                    242
                                                                                                                                                                                                                                                                                                                                222
                                                                                                                                                                                                                                                                                                                                                                            505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
```

```
밁
                                                                                                                                                      Ś
                                                                                                                                                                                                                                                   망
                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
 문
                           ঠ
                                                               밁
                                                                                       ફ
                                                                                                                                                                                       문
                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-089-514-6 (1-322) x CF823364 (1-900)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
 527
                                190
                                                               467
                                                                                                                         407
                                                                                                                                                         155
                                                                                                                                                                                        356
                                                                                                                                                                                                                     139
                                                                                                                                                                                                                                                    296
                                                                                                                                                                                                                                                                                 119
                                                                                                                                                                                                                                                                                                                  242
                                                                                                                                                                                                                                                                                                                                               103
                                                                                                                                                                                                                                                                                                                                                                                                                                             125
                                                                                                                                                                                                                                                                                                                                                                                                             83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes; Onygenales; mitosporic Onygenales; Coccidioides.

1 (bases 1 to 900)

Gardner, M. J. and Cole, G.T.

Analysis of gene expression in Coccidioides posadasii mycelia spherules via expressed sequence tags
Unpublished (2003)

Other ESTs: EST700745
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Gardner MJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Coccidioides posadasii
 CAATTCCCGTGGGAGATATCTCGATATGTGGGTGGAATTGAA----
                                                                                         ThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAla------
                                                                                                                         TCTTTCGAATCCAAATACGTTTACCTCACCGGGGAGAGGCATGATCGAATCACAGCGGAC 466
                                                                                                                                             GlyGlyGlyArgProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAla 174
                                                                                                                                                                                                                                                   TCGGTTCATTCCCTACATGGACCGAACGTGAACCCTAAAGGACAGCCGTTGGTCTTGATT
                                                                                                                                                                                                                                                                                GlyLeuAsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaVal 138
                                                                                                                                                                                                                                                                                                                                             GlyMetAlaAlaGluLeuAlaAla-----HisAlaProGly---ValGlnHisVal
                                                           ACTCAGGCCGTGACGCATGCTGCATTTTTGAGTATTGGGAACTGCGTGGCAAGCCAATAAC
                                                                                                                                                                                       CAGCACAGA-----GCCTCTGACGAGAGCCTCAGGTTTGTTGAAAGTGTGTTTGCG
                                                                                                                                                                                                                    ValThrArgAspGlyProGlyValThrAlaLeuLeuArgLeuValGlu------
                                                                                                                                                                                                                                                                                                               -----GCCCCAGAGCTGGCTGTTTTGAGAACCATCTTCCTGGGGACGTGGAGATTATT
                                                                                                                                                                                                                                                                                                                                                                              GAGTATGGCCCATCAACCAAAGTTGGCGCGATTGTTGGTGGTCAAACTTCCTGCAAA----
                                                                                                                                                                                                                                                                                                                                                                                                         ProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThr 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAlaValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                           AGAGTTAGCGACTACATTATCTACAGTGTAGAGGCAGAAGCCCATCAACAAATTGTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Institute for Genomic Research
2 Medical Center Drive, Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    primer: M13 Reverse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301 838 3519
301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gardner@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /dev stage="saprobic phase (mycelia)"
//lab_host="E. coli DH10B, T1 phage resistant"
/clone lib="Coccidioides posadasii saprobic phase cDNA
library, 2 to 4 kb"
/clone "Vector: pExpress 1; Site 1: Not I; Site 2: Eco RV;
Coccidioides posadasii saprobic phase cDNA library, size
fractionated cDNA 2 to 4 kb"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /db_xref="taxon:199306"
/clone="CIDAL10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          strain="C735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Coccidioides"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.00199
154.50
41.70%
28.09%
9.45%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _type="mRNA"
                                -LeuAlaArgLeu----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     posadasii"
                              -GlyValAspValArgAlaLeuAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        900
66
32
94
44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and
                                                                                                                                                                                                                                                                                                                                               118
                                                                                                                                                                                       406
 568
                                                                                          189
                                                                                                                                                                                                                     154
                                                                                                                                                                                                                                                   355
                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 7
CF881643
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                           á
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                         Score:
                                                                                                                                                                        Pred. No.:
                                                                                                                                                                                     Alignment
                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
169 GGCATGGGCGACATGGGCCGGATGTACGCCGAGAAGCTGTCGGAAGCTTGGCTGGAGAAATC 228
```

```
SOURCE
ORGANISM
US-10-089-514-6 (1-322) x CF881643
                                                                     Query Match:
                                                                                        Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             203 ThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySer 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ursub43 973 bp, mRNA linear EST 31-OCT-2003 tric028xo14.bl1 T.reesei mycelial culture, Version 6 October 2003 Hypocrea jecorina cDNA clone tric028xo14, mRNA sequence. CF881643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              North Carolina State University Campus Box 7251, Raleigh, NC 27 Tel: 919-513-0020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Teunissen, P.J.M., van Solingen, P:, Dankmeyer, L., Mitchell, T.K., Ward, M. and Dean, R.A.
Characterization of the protein processing and secretion pathways in a comprehensive set of expressed sequence tags from Trichoderma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Fungi; Ascomycota; Peżizomycotina; Sordariomycetes; Hypocreomycetidae; Hypocreales; Hypocreaceae; Hypocrea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hypocrea jecorina (anamorph: Trichoderma reesei)
Hypocrea jecorina
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEMS Microbiol. Lett. 230 (2),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 973)
Diener, S.E., Durn-Coleman, N., Foreman, P., Houfek, T.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: ralph_dean@ncsu.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fax: 919-513-0024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fungal Genomics Laboratory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Ralph A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CF881643.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspAlaProGlyArgAlaAspAlaProGlyHisProGlyGlyCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATGCAGAATCAGTGACCGAACTATTCAAATTGATGTTAGGCGGCCATCGTGATGA-GCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuAlaGluAlaLeuArgSer---PheAlaAlaLeuValGlyAspAspProAspArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGGCATGTCTATGCTGGACTTGCGATATTGAACCCTGCTGCCAAAAGACAGATCCGTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArgArgAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       primer: LT-F1 primer.
    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----TAAGCGCAGAGTCAAGGCTGCCAGGGCGGCTGT
                                                                                                                                                                                                                                                     /note="Vector: pREP3Y; $ite_1: Not I/Sal I; Mycelial culture grown from 24 hrs to 6 days with varying Car and Nitrogen sources and concentrations."
                                                                                                                                                                                                                                                                                                                           /dev_stage="mycelia"
/clone_lib="T.reesei mycelial culture, Version 6 October
2003"
                                                                                                                                                                                                                                                                                                                                                                                                            /mol_type="mRNA"
/strain="QM6a"
/db_xref="taxon:51453"
                                                                                                                                                                                                                                                                                                                                                                                              clone="tric028xo14"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Hypocrea
                                                0.0033
152.50
42.86%
30.10%
9.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:38136325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AACGTCAAAATTAATATCACATTACGCATCTACTCGAATAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dean
(1-973)
                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                             Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         jecorina"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27695,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      275-282 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                             973
59
25
85
27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             729
```

GlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAlaGlySerArgThr

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 8
CF682058
                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32
                                                                                                                                                                                                                                                                                                                               Cryptococcus neoformans var. neoformans
Eukaryota; Fungi; Basidiomycota; Hymenomycetes;
Heterobasidiomycetes; Tremellomycetidae; Tremel
                                                                                                                                                                                                                                                                                                                                                                                                                                              CF682058 821 bp mRNA linear EST 16-7 CCAHL63TR C.neoformans strain JEC21 Cryptococcus neoformans neoformans cDNA clone CCAHL63, mRNA sequence.
                                                                                                                                                          Department of Eukaryotic Rockville, MD 20850, USA Tel: 301-838-3543
                                                                                                                                                                                                                                Unpublished (2003)
Other_ESTs: CCAHL63TF
                                                                                                                 Seq
                                                                                                                              Email: crypt@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                      Cryptococcus neoformans var.
                                                                                                                                                                                                                                                                                                                                                                                                                    CF682058.1 GI:41536217
                                                                                                                                                                                                                   Contact: Brendan Loftus
                                                                                                                                                                                                                                                              JEC21
                                                                                                                                                                                                                                                                                        Loftus, B.
                                                                                                                                                                                                                                                                                                                    Filobasidiella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CACTCCCTCCACGGGCCCCGGCGTCGACCCCCAGAACCAGCCGCTGGTCCTCATCCAGCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AsnProMetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGly---ValGlnHisValGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGACCGTCAACGAAAATG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGTCACGCACGCCTTTCTCTCCATGGGCAAAGCCTGGCCCGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---TCGAAATACGTCCACCTCACGGCCAAGGAGCACGACCGCATCACCGCCGACACGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlyArgProValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCGCGCCCGACTCAGCCCTCCACAAAGTCGAGACGGTGCTGAGCTGCCTGAAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ArgAspGlyProGly----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCCCCCGAAATCGCCGCCTTCGAAGCCCACCTCCCCTCAGACGTCTTCATCGTCTCCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCGACTACATCATCTACTCGGTGGAAGCCGCCTTTATAGACCGCGTGATTGCTCAATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAATACAATGGCAAAAAGAACATTGAGATTCTCCGCAACGGCCATCTCGTGTCCCGCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGCGTGCGAC------AGAGAAGATAGATAGATAGCCTTAAAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuValValAspLeuValProProProGlyArgProAspAlaCysLeuValGlyAspVal
                                                                                                                                                                                                                                                                                                      (bases 1 to 821)
                                                                                                                 primer:
                                                                                                                                                                                                                                                           sequencing of clones
                                                                                                                                             301-838-0208
                                                                                                                                                                                                                                                                                                                                                                              neoformans)
                                                          /organism="Cryptococcus
/mol_type="mRNA"
                                                                                                   Location/Qualifiers
                                            /mol_type="mRNA"
/strain="JEC21"
                                                                                      1. .821
b_xref="taxon:40410"
lone="CCAHL63"
lone_lib="C.neoformans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -LeuLeuAlaValHisGluAspValAlaLeuLysAlaVal
                                                                                                                                                                                                                                                                          from
                                                                                                                                                                                       Genomics,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -ValThrAlaLeuLeuArgLeuValGluGlyGly
                                                                                                                                                                                                                                                                                                                                                                                         neoformans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCGCCATCGTCGGCGGCCAAACATCCTGCAAG
                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                           Full
                                                                        neoformans
    strain JEC21"
                                                                                                                                                                                      TIGR,
                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                                                                                                                                                                                         (Filobasidiella
                                                                                                                                                                                                                                                                                                                                  Tremellales;
                                                                                                                                                                                         9712
                                                                                                                                                                                                                                                                          enriched,
                                                                                                                                                                                       Medical Center Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST 16-AUG-2004
                                                                                                                                                                                                                                                                        normalized
                                                                                                                                                                                                                                                                                                                                  Tremellaceae;
                                                                                                                                                                                                                                                                                                                                                                                         neoformans
                                                                                                                                                                                                                                                                                                                                                                                                                                                               var.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51
                                         RESULT 9
CF702754
                                                                                                                                                                    Š
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                        뫄
                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                             LOCUS
                                                                                     밁
                                                                                                              Ş
                                                                                                                                             吊
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NO.
                                                                                                                                                                                                     640
                                                                                                                                                                                                                                                            580
                                                                                                                                                                                                                                                                                                                                                                                                                                   403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scores:
                                                                                                                                             699
                                                                                                                                                                                                                                                                                       172
                                                                                                                                                                                                                                                                                                                                                                           463
                                                                                                                                                                                                                                                                                                                                                                                                                                                             117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
 CF702754
CCAHK69TR C.r
neoformans cI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
```

밁 Ş 밁 Ś 밁 5 문 Ş 밁 Ş 밁 Ś 밁 Ş 밁 Ş 문

> /note="Vector: pCMVSport6; Site_1: NotI_EcoRV; The length, normalized library was prepared from a vari conditions using RNA provided by Joseph Heitman and Jennifer Lodge" a variety man and full Ŏ.

Percent Similarity: Best Local Similarity: US-10-089-514-6 (1-322) x CF682058 136 GGCGGCATCGAGACTATCTACGTC------TGCGACAAACCCGACTCTTTC GATGTGGGGATTACGAGTGTACATAGTTTGCATGGGCCGAGTGTGACGACAGAGGGCCAG GAGGCCCTCGAGGAAGAATTCAAAGGGACCGGCATACATGTCCTCCGCAACGGTCACGCC GCTGAACCCGTCGGCCAAATCC gSerAsnProArgAlaAlaSer 238 GGTCAACATTACCCTCCGTATCTACTCTGCCAAATGGCACGTCTACGCCGGTCTTGCGCT uLeuAlaLeuLeuAlaArgValLeuGlyGlySerProGluValTyrGlyAspIleGlnAr AAATCTTCATCTTACCCATGGGAAACTACGCGCTACGTGTCCGGTATC-GAAGTGATCAA Arg-LeuGlyValAspValArgAlaLeuAlaAlaThrAlaProProProHisGlnValLe ACTGCCAACACCCAGGCTGTGACGCATGCGGCTTTCCTCAGTATGGGTACAGCATGGCAG ThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAla GTTTTTAGGTCATTCAAGAGTCGATACGTTCATCTGAGCTACGAAGAGCATGATAAAGTG LeuValGluGlyGlyGlyArgProValArgLeuThrAlaGluGluHi8AspArgThr CCGCTT---ATTATCATACATCACAGAGGTCCGGAAGAGATGTGAAGATGGTTGAAGAT ProValAlaAlaValValThrArgAspGlyPro-----GlyValThrAlaLeuLeuArg HisValGlyLeu-----AsnProMetPheAlaProAlaAlaGlyMetThrGlyArg CAGACGAGTGTGAAAGCCCCCGGAGAGGGGAGGGCATTTGAGAGATGGTTACCG-----GAG ThrLeuSerValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGln GTCTCGCGTCTTTCCACATTCATCATTTATTCTGTC---GAAGCTGCCTGCGTTGCCGGCT AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla ---CysLeuValGlyAspValThrAlaProGlyProGluLeuAla------Ala GTGGTAGGCATCATCGGGATGGGTGATATGGGACGGATGTATGCAAAGCGATTACATGCG ValValGly-----GlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGlu -----AlaproValThrArqLeuMetArgProGlyAlaLeuLeuAlaAsp 830 bp mRNA linear C.neoformans strain JEC21 Cryptococcus cDNA clone CCAHK69, mRNA sequence. 0.00903 146.50 43.55% 29.03% 8.96% (1-821)780 Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps: 821 72 36 110 31 linear EST 16-AUG-2004 758 969 639 191 579 519 151 462 133 402 116 348 96 80 60 180 45 211 171 297 240 26

neoformans

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
SOURCE
                                                                                                                Ś
                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
                                       밁
                                                               Ş
                                                                                            밁
                                                                                                                                             밁
                                                                                                                                                                      Ś
                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                            US-10-089-514-6 (1-322)
             S
                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                           Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                       No ::
                                                                                            316
               117
                                                                                                                                              259
                                                                                                                                                                                                 199
                                                                                                                                                                                                                                                     154
                                                                 97
                                                                                                                    81
                                                                                                                                                                       61
                                                                                                                                                                                                                           46
                                                                                                                                                                                                                                                                              27
                                                                                                                                                                                                                                                                                                        94
                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Department of Eukaryotic Rockville, MD 20850, USA Tel: 301-838-3543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cryptococcus neoformans var. neoformans
Eukaryota; Fungi; Basidiomycota; Hymenomycetes;
Heterobasidiomycetes; Tremellomycetidae; Tremel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unpublished (2003)
Other_ESTs: CCAHK69TF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CF702754
CF702754.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: crypt@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Brendan Loftus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             var. neoformans)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Loftus, B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Filobasidiella.
                                                                                                                                                                                                                                                                             AlaGlySerArgThrLeuValValAspLeuValProProProGlyArgProAspAla---
                                                                                                                                                                                                                                                                                                        GTGGTAGGCATCATCGGGATGGGTGATATGGGACGGATGTATGCAAAGCGATTACATGCG
                                                                                                                                                                                                                                                                                                                       ValValGly-----GlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGlu
 HisValGlyLeu------
                                                                                            GTCGTGAGAGAGTACGGACCTTCGACTCGGGTG---
                                                                                                                  Val-----AlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAsp
                                                                                                                                             GTCTCGCGTCTTTCCACATTCATCATTATTCTGTC---GAAGCTGCTGCGTTGCCGGCT
                                                                                                                                                                       AlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspValAlaLeuLysAla
                                                                                                                                                                                                 GAGGCCCTCGAGGAAGAATTCAAAGGGACCGGCATACATGTCCTCCGCAACGGTCACGCC
                                       CAGACGAGTGTGAAAGCCCCCGGAGAGGGGAGGCATTTGAGAGATGGTTACCG-----GAG
                                                                 ThrLeuSerValArgThrGlyMetAlaAlaGluLeuAlaAlaHisAlaProGlyValGln 116
                                                                                                                                                                                                                          ---CysLeuValGlyAspValThrAlaProGlyProGluLeuAla------Ala
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 830)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     primer:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequencing of clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:40410"
/clone="CCAHK69"
/clone_lib="C.neoformans strain JEC21"
/clone_lib="C.neoformans strain JEC21"
/note="Vector: pCMVSport6; Site_1: NotI EcoRV; The full length, normalized library was prepared from a variety conditions using RNA provided by Joseph Heitman and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /organism="Cryptococcus
/mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Jennifer Lodge"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     strain="JEC21"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     library
                                                                                                                                                                                                                                                                                                                                                            x CF702754 (1-830)
                                                                                                                                                                                                                                                                                                                                                                                                0.00915
146.50
43.55%
29.03%
8.96%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:41556913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          neotormans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tremellomycetidae; Tremellales;
 -AsnProMetPheAlaProAlaAlaGlyMetThrGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        var.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Genomics,
                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        neoformans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   þ
                                                                                                                                                                                                                                                     -----TGCGACAAACCCGACTCTTTC 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Full length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               neoformans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIGR,
                                                                                            -----GGCGCGGTTGTAGCTGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Filobasidiella neoformans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9712 Medical Center Drive,
                                                                                                                                                                                                                                                                                                                                                                                     830
72
36
110
31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               var.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   enriched,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               neoformans"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   normalized
                                       420
                                                                                                                   96
                                                                                                                                                                       80
                                                                                                                                                                                                 258
                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                              45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of.
                                                                                                                                                                                                                                                                                                                                                                         JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
CF819790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮍
                                       Score:
                                                     Pred.
                                                                Alignment
                                                                                            ORIGIN
                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                  source
                                                     Мо.
:
                                                                 Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421 GATGTGGGGATTACGAGTGTACATAGTTTGCATGGGCCGAGTGTGACGACAGAGGGCCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence.
CF819790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Coccidioides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CF819790.1
                                                                                                                                                                                                                                                                   . .859
0.0106
146.00
43.78%
29.35%
8.93%
```

```
152 LeuValGluGlyGlyGlyArgProValArgLeuThrAlaGluGluHisAspArgThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CF819790 859 bp mRNA linear FEST697172 Coccidioides posadasii saprobic phase cDNA 4 kb Coccidioides posadasii cDNA clone CIDA071 3' end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The Institute for Genomic Research 9712 Medical Center Drive, Rockville, Tel: 301 838 5519
Fax: 301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unpublished (2003)
Other_ESTs: EST697173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 859)
Gardner,M.J. and Cole,G.T.
Analysis of gene expression in Coccidioides
spherules via expressed sequence tags
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes; Onygenales; mitosporic Onygenales; Coccidioides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Gardner MJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Coccidioides posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gSerAsnProArgAlaAlaSer 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGTCAACATTACCCTCCGTATCTACTCTGCCAAATGGCACGTCTACGCCGGTCTTGCGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      uLeuAlaLeuLeuAlaArgValLeuGlyGlySerProGluValTyrGlyAspIleGlnAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProValAlaAlaValValThrArgAspGlyPro-----GlyValThrAlaLeuLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGAACCCGTCGGCCAAATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAATCTTCATCTTACCCATGGGAAACTACGCGCTACGTGTCCGGTATC-GAAGTGATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Arg-LeuGlyValAspValArgAlaLeuAlaAlaThrAlaProProProHisGlnValLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTGCCAACACCCAGGCTGTGACGCATGCGGCTTTCCTCAGTATGGGTACAGCATGGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrAlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTTTTTAGGTCATTCAAGAGTCGATACGTTCATCTGAGCTACGAAGAGCATGATAAAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCGCTT---ATTATCATACATCACAGAGGTCCGGAAGAATGTGAAGATGGTTGAAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gardner@tigr.org.
Location/Qualifiers
                                                                                                                                                                                  /dev stage="saprobic phase (mycelia)"
/lab_host="E. coli DH10B, T1 phage resistant"
/clone_lib="Coccidioides posadasii saprobic phase cDNA
library, 2 to 4 kb"
/note="Vector: pExpress 1; Site_1: Not I; Site_2: Eco RV;
Coccidioides posadasii saprobic phase cDNA library, size
fractionated cDNA 2 to 4 kb"
                                                                                                                                                                                                                                                                                                                                                                                                  /mol_type="mRNA"
/strain="C735"
                                                                                                                                                                                                                                                                                                                                                      clone="CIDA071"
                                                                                                                                                                                                                                                                                                                                                                                db_xref="taxon:199306"
                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Coccidioides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GI:45925821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             798
                                                                    Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  posadasii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₹
59
29
31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    posadasii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  end, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EST 01-APR-2004
library, 2 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mycelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   211
```

Conservative: Mismatches: Indels:

```
JOURNAL COMMENT
                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                             RESULT 11
CL959323/c
                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                               LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-089-514-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뮵:
                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         618
                                                                                                                                                                                                                                                                                                                                                                                                                               849
                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         567
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       89
 Contact: Chen Chen
Department of Bioinformatic
Beijing Institute of Genomics
Chinese Academy of Sciences, E
Tel: 86-10-80481559
                                                                                                                                                                            Oryza sativa (indica cultivar-group)
Oryza sativa (indica cultivar-group)
Cyza sativa (indica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.

1 (bases 1 to 1407)
                                                                                                                                                                                                                                                                             CL959323 1407 bp DNA linear GSS OSIFCC002644 Oryza sativa Express Library Oryza sativa cultivar-group) genomic, genomic survey sequence. CL959323 CL959323.1 GI:52373397 GSS.
                                                                              Ma,L., Wangc,J., Chen,C., Liu,X., Su,N., Li,L., Wang,X., Cao Jiao,Y., Sun,N., Zhang,X., Bao,J., Sun,D., Zhao,H., Yuan,L., Wong,G.K.S., Deng,X.W. and Wang,J.
An analysis of transcriptional regulation of the rice genome its comparison to Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAspGlyPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ala 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValArgLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaAla-----HisAlaProGly---ValGlnHisValGlyLeuAsnProMetPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAAGTTGGCGCGATTGTTGGTGGTCAAACTTCCTGCAAA------GCCCCAGAGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspLeuValProProProGlyArgProAspAlaCysLeuValGlyAspValThrAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGCCAAGCGGGTTGGAGACTTAAAAGACCCTCTAATACCGTGGGCTGATGTATTATACTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAAGATCCATTGGGATCATTGGGATGGGTGATATGGGAAGGATGTATGCTCAGCGCTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTTTACCTCACCGGGGAGAGGCATGATCGAATCACAGCGGACACTCAGGCCGTGACGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCTCTGACGAGAGCCTCAGGTTTGTTGAAAGTGTGTTTGCGTCTTTCGAATCCAAATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyValThrAlaLeuLeuArgLeuValGlu------GlyGlyGlyArgPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGACCGAACGTGAACCCTAAAGGACAGCCGTTGGTCTTGATTCAGCACAGA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTGCTTTTGAGAACCATCTTCCTGGGGACGTGGAGATTATTTCGGTTCATTCCCTACAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGlyMetAlaAlaGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATCTACAGTGTAGAGGCAGAAGCCATCAACAAAATTGTGGCGGAGTATGGCCCATCAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeuMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AT-ACAAATATCAATATTACCCAACGGACATTTGGTCTCCAGAGTTAGCGACTACATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCATTAATGCCTGCGACAAACCTACCAATTATGACACACTGAGGCAAGAATTCATATCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ArgGluAlaGlySerArg-------ThrLeuValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1-322) x
                                                                                                                                                                                                                                                                                                                                                                                                                               851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CF819790
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -ProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1-859)
                  Beijing 101300,
                    China
                                                                                                                genome and
                                                                                                                                                                                                                                                                                                                                             (indica
                                                                                                                                                                                                                                                                                                                                                              21-SEP-2004
                                                                                                                                                               Cao, M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   447
                                                                                                                밁
                                                밁
                                                                             S
                                                                                                                                            Ş
                                                                                                                                                                           밁
                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-089-514-6 (1-322) x CL959323 (1-1407)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1225
                                                                                                                                                                                                                                                                                                                                                                                                                                           1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1096
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1153 -----GCCGCTGCATTA-----TTG
                                                                                                                                                                                                                                                                                                             919
                                                                                                                                                                                                                                                                                                                                                                             979
                                                                                                                                                                                                                                                                                                                                                                                                           125
                  222
                                                                                                                                                                                                                 162
                                                                                                                                                                                                                                                                             149
                                                                                                                                                182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: chenchen@genomics.org
Rice genomic sequence.
Class: exon-trapped.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fax: 86-10-80488676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValProProProGlyArgProAspAlaCysLeuValGlyAspValThrAlaProGlyPro
rProGluValTyrGlyAspIleGlnArgSerAsn--
                                                                                                                                  CCGCCGCCGCCGCCACCGCCAGCGGCGGAGGTT-----GCTCGTTGGCCAGGC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCGGTGGATTTGCT
                                                  C----
                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTGCGATGGCGGCGGCGGCTGGTTCGCCGCCACTTGGGCGTC---CCCCGGTGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaGluLeuAlaAlaHisAlaProGlyVal-GlnHisValGlyLeuAsnProMetPheAl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaLeuLysAlaValAlaProValThrArgLeuMetArgProGlyAlaLeuLeuAlaAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluLeuAlaAlaAlaLeuArgAspAlaAspLeuValLeuLeuAlaValHisGluAspVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlyMetPheAlaGlyLeuLeuArgGluAlaGlySerArgThrLeuValValAspLeu
|||
                                                                             aThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGlyGlySe
                                                                                                                CCTCTTCTTCCATGGCGCGGATCCGCTTCGAGTTGGCCTCGACCCTCCGGACCTCGCCGG
                                                                                                                                                                                C-----
                                                                                                                                                                                                            gLeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaVa
                                                                                                                                                                                                                                              CGCTGTTGCTGCTGCCGCTGCCGGCCGACGAGACGGACTTGGCGTCGTCGTCGGTCT
                                                                                                                                                                                                                                                                                                                                           tThrGlyArgProValAlaAlaValValThrArgAspGlyProGlyValThrAla----
                                                                                                                                                                                                                                                                                                                                                                          aPro-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACTTCGTCCTGACGTCGTCGTCGGCGCGCGCTCTTCTTTGATGTGTGGCTTGGCATTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrLeuSerValArg----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGCAACGGCCGGTCGCGGCTTCATTGCGGTGGCGGCGCGCG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Oryza sativa (j
/mol type="genomic DNA"
/db_xref="taxon:3946"
/clone lb="Oryza sativa E
/note="Oryza sativa exon t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                -GCGCACCACCTCCACGTTGCCGTATCCTACGAGCAGCTC-----CCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.0218
145.50
36.00%
29.85%
8.90%
                                                                                                                                                                                                                                                                          -LeuLeuArgLeuValGlu-----GlyGlyGlyGlyArgProValAr
                                                -GGCGTCGTGGTCGCGTGGCGGCTCCTCTTGATCTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Express
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (indica cultivar-group)"
                                                                                                                                                                                                                                                                                                                                                                                                          ·----AlaAlaGlуме
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              l genomic :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -ThrGlyMetAla 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --CGCCTA
                                                653
                                                                                                                                              202
                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                             162
                                                                                                                                                                                                                                                                                                             860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1205
                                                                                222
                                                                                                                695
                                                                                                                                                                              755
                                                                                                                                                                                                                                              800
                                                                                                                                                                                                                                                                                                                                             148
                                                                                                                                                                                                                                                                                                                                                                           920
                                                                                                                                                                                                                                                                                                                                                                                                          130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36
                                                                                                                                                                                                                                                                                                                                                                                                                                           980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96
```

160 816 142 122 936 103

876

```
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                      Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                       Alignment
                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                       US-10-089-514-6
                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AG061086/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        285 lPheGlyGluLeu 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     415
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (02-AUG-2001) Asao Fujiyama, The Institute of Physical and Chemical Research (RKEN), Genomic Sciences Center (GSC); 1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:chimpbes@gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)
Clones are derived from the chimpanzee BAC library PTB This BAC end case generated during the R&D process and may have higher chance of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pan troglodytes DNA, cle
AG061086
AG061086.1 GI:16612888
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fujiyama,A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fujiyama, A., Hattori, M., To
Totoki, Y., Watanabe, H. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fujiyama,A., Hattori,M., Toyoda,A., Totoki,Y., Watanabe,H. and Sakaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Pan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AG061086
                                                                                                                                                                                                                                                                                                                                                                                                     LIBRARY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            yArgAlaAspAlaProGlyHisProGlyGlyCysAspGlyAlaGlyAsnLeuAspGlyVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           uAlaLeuArgSerPheAlaAlaLeuValGjyAspAspProAspArgAlaAspAlaProGj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCTGGCGGACGACCATGCTCGGGGGCACCGTGATGGCGCTGGGCGAGCCGACGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGACGGTGAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGGCGGCGGGGGGCGCGGTTTGCGGCGCGTTGGGGCGCGCCGTCGGCTCCCTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 969)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   end sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    troglodytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   troglodytes (chimpanzee)
                       (1-322)
                                                                                                                                                                                                                                                                                                                                                      ש ש
                                                                                                                                                                                                                                                                                                                                                                                                                 Sequencing: -21M13
                                                                                                                                                                                                                                                                                                                                                                                    Vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                 tracking errors.
                                                                                                                                                                                                                                                                                                                                                  ector : pKS145
.Site 1 : SacI
.Site 2 : SacI
                                                                                                                                                                                                 /cell_type="lymphoblast"
/clone_lib="PTB Chimpanzee Male
                                                                                                                                                                                                                                                 /organism="Pan troglodytes"
/mol_type="genomic DNA"
/db_xref="taxon:9598"
/clone="PTB-049A11.F"
                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                     sex="male"
                                                                     0.0205
143.50
36.77%
33.63%
8.78%
                      ×
                                                                                                                                                                                                                                                                                                                       . 969
                      AG061086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  969 bp DNA
DNA, clone: PTB-049A11.F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of Library PTB
                       (1-969)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Toyoda,A., Taylor,T.D., Yada,
nd Sakaki,Y.
                                                                                                                     Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -ProArgAlaAlaSerAlaArgArgAlaLeuAlaGl
                                                                                     Conservative: Mismatches:
                                                                       Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Taylor, T.D.,
                                                                                                                                                                                                     BAC Library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  genomic survey sequence.
                                                      969
75
7
103
39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GSS 03-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    533
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     593
                                                   JOURNAL
PUBMED
REFERENCE
                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                 AY408045/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                 VERSION
                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
                                       AUTHORS
                                                                                                                     TITLE
                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   767
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               143 GlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyGlyArg-----Pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  104 MetAlaAlaGluLeuAlaAlaHisAlaProGlyValGlnHis---ValGlyLeuAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    896
                                                                                                                                                                                                                                                                                                                                                                                                                                    406
                                                                                                                                 1 (bases 1 to 1086)
Clark, A.G., Glanowski, S., Nielson, R., Thomas, P., Kejariwal, Todd, M.A., Tanenbaum, D.M., Civello, D.R., Lu, F., Murphy, B., Ferriera, S., Wang, G., Zheng, X.H., White, T.J., Sninsky, J.J., Adams, M.D. and Cargill, M.
Clark,A.G., Glanowski,S., Nielson,R., Thomas,P., Kejariwal Todd,M.A., Tanenbaum,D.M., Civello,D.R., Lu,F., Murphy,B., Ferriera,S., Wang,G., Zheng,X.H., White,T.J., Sninsky,J.J.
                                                                                                                                                                                                                                                                                               genomic survey sequence.
AY408045
AY408045.1 GI:39764016
                                                                               gene trios
Science 302 (5652), 1960-1963 (2003)
                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                     Homo
                                                                                                                                                                                                                                                                                                                                                Homo sapiens SUV39H1 gene, VIRTUAL
                                                                                                                                                                                                                                                                                                                                                                   AY408045
                                                                                                                                                                                                                                                                  Homo sapiens (human)
                                                                     14671302
                                                                                                                  Inferring nonneutral evolution from human-chimp-mouse orthologous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaValLeuLeuSerPheGlyLeuAlaLeuAlaArgLeuGlyValAspValArgAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValArqLeuThrAlaGluGluHisAspArqThrThrAlaAlaThrGlnAlaLeuThrHis 180
                                                                                                                                                                                                                                                                                                                                                                                                                                    GGGGGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AlaAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGNGGGGGGGCCTGCCCGCGCTC---GGCGCGCGCGCGC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ArgAlaLeuAlaGluAlaLeuArgSerPheAlaAlaLeuValGlyAspAspProAspArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlySerProGluValTyrGlyAspIleGlnArgSerAsnProArgAlaAlaSerAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAlaThrAlaProProProHisGlnValLeuLeuAlaLeuLeuAlaArgValLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyAlaGlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeuMetGlyProGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaAspAlaProGlyArg-----AlaAspAlaProGlyHisProGlyGlyCysAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCTGCCGGGCGGGCCGTGGGG--GCGGTTGGGCGCCTCGCGNCCGCCGGCCCGGGCGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96
6-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValValThrArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCGGCCGCGCCCCCCCCGCCCCGCCCCGCCCCCACTCGGCGGGGGCAGCGCCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValThrArgLeuMetArgProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGTTGTTTTTGGCCCCGGGG------
                                                    (bases 1 to 1086)
                                                                                                                                                                                                                                                   sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GGGCGCGNGCGTCTCGCGTCGCGGGGGGGGGGGGGCCCGGCCCC
                                                                                                                                                                                                                                                                                                                                                                 ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ceecceecceecceecceecceecceecceec
                                                                                                                                                                                                                                                                                                                                                TRANSCRIPT, partial sequence,
                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    --- CCGCGGGTCGGTGGC
                                   Kejariwal, A.,
                                                                                                                                                                                Kejariwal, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - GGCCCCCCCCGG
                                                                                                                                                                                                                                                                                                                                                                 GSS 15-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTTCCCCT
```

40

455

297

515 260 575 240 809 220 650 200 708

277

```
Percent Similarity:
Best Local Similarity:
Query Match:
 밁
                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                            Ś
                                                           В
                                                                                                                      밁
                                                                                                                                                 Ş
                                                                                                                                                                                 밁
                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-089-514-6 (1-322) x AY408045 (1-1086)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     No.:
                                                                                                                                                                                                                                           554
                                                                                                                                                                                                                                                                                                     614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scores:
                                                            395
                                                                                        193
                                                                                                                        449
                                                                                                                                                    173
                                                                                                                                                                                 494
                                                                                                                                                                                                              157
                                                                                                                                                                                                                                                                       140
                                                                                                                                                                                                                                                                                                                                 127
                                                                                                                                                                                                                                                                                                                                                                674
                                                                                                                                                                                                                                                                                                                                                                                            107
                                                                                                                                                                                                                                                                                                                                                                                                                          731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          866
                                                                                                                                                                                                                                                                                                                                                                                                                                                        89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Adams, M.D. and Cargill, M.
Direct Submission
Submitted (16-NOV-2003) Celera Genomics, 45 West Gude Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rockville, MD 20850, USA
                                                                                                                     AGGGCCGTCCAG-----GTCCACCTCATTCTCTACAGTGATGCGTCCCAGATGGCTGCG
                                                                                                                                                                                                                                                                                                                                                                                         GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                  AlaLeuLeuAlaArgValLeuGlyGlySer---ProGluValTyrGlyAspIle-GlnAr
                                                                                                                                                 AlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArg
                                                                                                                                                                                                         GlyGlyArgProValArgLeuThr-----AlaGluGluHisAspArgThrThr
                                                                                                                                                                                                                                                                                                                                                               GTCATAGCCGCAGCGGCAGCCGGAGTTGCACTCGTAGATGGGCAGCCCGGCTCGAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                             Arg-----ProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGlyMetAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GCTGTTCTTGCGAATCTTCTCCAGGGTGCGGACGCCCAGCCACGCCCATCATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeuMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAlaGly
GGCCTTCTGCACCAGGTAGTTGGCCAAGCTTGGGTCCAGGTGCCGGGGGGTCTTTGACCG
                                                            CTTGGCATTGAGCTC---CTGCTCCCAGCGACGGAGCGCCCCCCCT-----
                                                                                       LeuGlyValAspValArgAlaLeuAlaAlaThrAlaProProProHisGlnValLeuLeu
                                                                                                                                                                                                                                           AGTGGGTGCCCACAGACAGTCCTGGCACTCGCAGCCCACAGCCACCTGGTTGAGGGTGAT
                                                                                                                                                                                                                                                                    ThrArgAspGlyProGlyValThrAlaLeuLeu-----ArgLeuValGluGlyGly 156
                                                                                                                                                                                                                                                                                                  CACCTGGCCCTGGTCATTGTAGGCAAACTTGTGCAGTGACGCCCCGGGCAGCAGCCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                          CGTGCGGAAGATGCAGAGGTCATATCGGATACCCTTCTGTACCACACG---ATTTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCGCCCTGACGGTCGTAGATCTGGCCCCGCCG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeuVal
                                                                                                                                                                                                                                                                                                                                 ----AlaAlaGlyMetThrGly------ArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence was made by sequencing genomic exons and ordering based on alignment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----TGAGGTAATGATCTCTCCCACGTACTCCATGACGAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Homo sapiens"
/mol_type="genomic DNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="SUV39H1"
/locus_tag="HCM3093"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.0393
141.00
44.57%
31.40%
8.62%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .>1086
                                                                                                                                                                                 ĊTĊĂĊĊAACACGGTACTCATTGATGTĂĊĂĊGAAGGCCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1086
81
34
98
45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----CTCTGCCTCCTC
                                                            -CIGCIT
                                                                                                                                                                                                                                                                                                                                   139
                             231
                                                           348
                                                                                        212
                                                                                                                      396
                                                                                                                                                                                450
                                                                                                                                                                                                                                          495
                                                                                                                                                                                                                                                                                                     555
                                                                                                                                                                                                                                                                                                                                                                                            126
                                                                                                                                                                                                                                                                                                                                                                                                                          675
                                                                                                                                                                                                                                                                                                                                                                                                                                                        106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      867
                                                                                                                                                                                                                                                                                                                                                               615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               786
```

```
REFERENCE
AUTHORS
TITLE
JOURNAL
REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 14
CR595067/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
                                                       멂
                                                                                        Ś
                                                                                                                              밁
                                                                                                                                                               Ş
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                       US-10-089-514-6 (1-322) x CR595067 (1-1684)
                                                                                                                                                                                                                                                                                                                                                                                                             Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                823
                                                                                                                                                                                                       868 GGCGCCTGACGGTCGTAGATCTGGCCCCGCCG------CTCTGCCTCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          231
                                                         787
                     89
                                                                                            69
                                                                                                                                                                     49
                                                                                                                                                                                                                                                                                                             9 ValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArgGluAlaGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         - Web: www.genoscope.cns.fr)

1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-strand cDNA was digested with Not I and cloned into the Not I and EcoR V sites of the pCMVSPORT 6 vector. Library was normalized. Library was constructed by Life Technologies, a division of Invitrogen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission

Submitted (20-JUL-2004) Genoscope - Centre National de Sequencage

BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Faraday Avenue
2 (bases 1 to 1684)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact : Feng Liang Email : fliang@lifetech.com URL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Li,W.B., Gruber,C., Jessee,J. and Polayes,D. Full-length cDNA libraries and normalization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 1684)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CR595067.1 GI:50475874
HTC; CNSLT_CDNA.
Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             full-length cDNA clone
Cot 25-normalized of Ho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genoscope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                http://fulllength.invitrogen.com/ InVitroGen Corporation 1600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CR595067
                                                                                                                                                                                                                                                                                  Arg-----ProGlyAlaLeuLeuAlaAspThrLeuSerValArgThrGlyMetAlaAla 106
                                                                                          LeuLeuAlaValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeuMet 88
                                                                                                                                                                                                                              SerArgThrLeuValValAspLeuValProProProGlyArgProAspAlaCysLeuVal 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTGGTGCCGCCGGAGCAGCTCCCTTTCTAAGTCCTTGTGGAACTGCTTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gSerAsnProArgAlaAlaSerAlaArgArgAlaLeuAlaGluAlaLeuArg
                                                                                                                                                                   GlyAspValThrAlaProGlyProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuVal
                                                       - GCTGTTCTTGCGAATCTTCTCCAGGGTGCGGACGCCCCAGCCACGCCCATCATC
                                                                                                                                ----TGAGGTAATGATCTCTCCCACGTACTCCATGACGAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone="CSODL012YI12"
/tissue_type="B_cells (Ramos
/plasmid="pCMVSPORT_6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /mol_type="mRNA"
/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .1684
                                                                                                                                                                                                                                                                                                                                                                                         0.0683
141.00
44.57%
31.40%
8.62%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of Homo sapiens (human).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1684 bp mRNA linear HTC 21-JUL-2004 CSODL012YI12 of B cells (Ramos cell line)
                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                             Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cell line)
                                                                                                                                                                                                                                                                                                                                                                                         1684
81
34
98
45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-normalized"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           248
                                                                                                                                                                     83
                                                                                                                                                                                                       824
                                                                                                                                                                                                                                                                                  869
                                                                                                                                788
```

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                             FEATURES
                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 15
                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AG071167/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 451 AGGGCCGTCCAG-----GTCCACCTCATTCTCTACAGTGATGCGTCCCAGATGGCTGCG 398
                                                                                                                                                                                                          Submitted (02-AUG-2001) Asao Fujiyama, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC), 1-7-22 Suehiro-chou, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan (E-mail:chimpbes@gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-45-503-9111, Fax:81-45-503-9170)
                                                                                                                                                                                                                                                                                                                                       -ujiyama, A., Hattori, M., Toyoda, A.,
Totoki, Y., Watanabe, H. and Sakaki, Y.
BAC end sequences of Library PTB
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AG071167 114:
Pan troglodytes DNA, clone:
AG071167 GI:16622969
GSS:
                                                                                                                                                                                                                                                                                               2 (bases 1 to 1145)
Fujiyama,A., Hattori,M., To Totoki,Y., Watanabe,H. and
                                                                                                                                                                 clone tracking errors.
                                                                                                                                                                                was generated during the R&D process and may have higher chance
                                                                                                                                                                                             Clones are derived from the chimpanzee BAC library PTB This BAC
                                                                                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pan troglodytes
                                                                                                                    Sequencing: -21Ml3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaLeuLeuAlaArgValLeuGlyGlySer---ProGluValTyrGlyAspIle-GlnAr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gSerAsnProArgAlaAlaSerAlaArgArgAlaLeuAlaGluAlaLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCCTTCTGCACCAGGTAGTTGGCCAAGCTTGGGTCCAGGTGCCGGGGGGTCTTTGACCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTGGCATTGAGCTC---CTGCTCCCAGCGACGGAGCGCCCCGCCT-----CTGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuGlyValAspValArgAlaLeuAlaAlaThrAlaProProProHisGlnValLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaAlaThrGlnAlaLeuThrHisAlaValLeuLeuSerPheGlyLeuAlaLeuAlaArg 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCC-----CTCACCAACACGGTACTCATTGATGTACACGAAGGCCCGCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyGlyArgProValArgLeuThr------AlaGluGluHisAspArgThrThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGTGGGTGCCCACAGACAGTCCTGGCACTCGCAGCCCACAGCCACCTGGTTGAGGGTGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrArgAspGlyProGlyValThrAlaLeuLeu-----ArgLeuValGluGlyGly 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACCTGGCCCTGGTCATTGTAGGCAAACTTGTGCAGTGACGCCCCCGGGCAGCAGCCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTCATAGCCGCAGCGGCAGCGGGAGTTGCACTCGTAGATGGGCAGCCCGGCTCGAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnProMetPheAlaPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGTGCCGCCGGAGCAGCTCCCTTTCTAAGTCCTTGTGGAACTGCTTGAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----AlaAlaGlyMetThrGly------ArgProValAlaAlaValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGTGCGGAAGATGCAGAGGTCATATCGGATACCCTTCTGTACCACACG---ATTTGGGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                troglodytes (chimpanzee)
                                                                                                        Vector
                                                                           Site 1
/organism="Pan troglodytes"
/mol_type="genomic DNA"
/db_xref="taxon:9598"
                                               Location/Qualifiers
1. .1145
                                                                         : pKS145
: SacI
: SacI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1145
                                                                                                                                                                                                                                                                                                Toyoda,A., Taylor,T.D.,
nd Sakaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PTB-062E12.F,
                                                                                                                                                                                                                                                                                                                                                                                                                    Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Pan.
                                                                                                                                                                                                                                                                                                                                                                                        Taylor, T.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
genomic
                                                                                                                                                                                                                                                                                                                 Yada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           survey sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         03-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  677
                                                          Ś
                                                                                                                                                                            Ś
                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                               뮰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                              밁
                                                                                         밁
                                                                                                              S
                                                                                                                                                  밁
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-089-514-6 (1-322) x AG071167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.
    253
                                                                                                                      213
                                                                                                                                                     371
                                                                                                                                                                                                            431
                                                                                                                                                                                                                                                                                                                                                         143 GlyProGlyValThrAlaLeuLeuArgLeuValGluGlyGlyGlyArgProValArg
                                                                                                                                                                                                                                                                                                                                                                                                                     123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            920
                                                                                                                                                                                                                                                                                                163 LeuThrAlaGluGluHisAspArgThrThrAlaAlaThrGlnAlaLeuThrHisAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26 -GluAlaGlySerArgThrLeuValValAspLeuValPro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
   LeuValGlyAspAspProAspArgAlaAspAlaProGlyArgAlaAspAlaProGlyHis
                                 ---cceceeeceeececc
                                                           AsnProArgAlaAlaSerAlaArgArgAlaLeuAlaGluAlaLeuArgSerPheAlaAla
                                                                                                                      AlaLeuLeuAlaArgValLeuGlyGlySerProGluValTyrGlyAspIleGlnArgSer
                                                                                                                                                   LeuGlyValAspValArgAlaLeuAlaAlaThrAlaProProProHisGlnValLeuLeu
                                                                                                                                                                                                                                                                                                                               MetPheAlaProAlaAlaGlyMetThrGlyArgProValAlaAlaValVhrArgAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCCGCGCGCTCCCGCTCGGCGCGCGTGCG;----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            lThrAlaProGly-ProGluLeuAlaAlaAlaLeuArgAspAlaAspLeuValLeuLeuA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgSerValValValGlyGlySerGlyAlaValGlyGlyMetPheAlaGlyLeuLeuArg
                                                                                          ecceccececcecceccegccegccece-----
                                                                                                                                                                                                            GGGCGCCCGCCGCCGCGCGTGCTTTCTCTCTCGGCGCGTCTCGGGCGTTGGTGCGC
                                                                                                                                                                                                                                                                      lyMetAlaAla-GluLeuAlaAlaHisAlaProGlyValGlnHisValGlyLeuAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           laValHisGluAspValAlaLeuLysAlaValAlaProValThrArgLeuMetArgPro-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CGCTGCCGTTCGGCGCGGCCGCCCCGGCTCGCCCCGCGGGGTGTGCGTCCGGAGCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ProproGlyArgProAspAlaCysLeuValGlyAspVa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /sex="male"
/cell_type="lymphoblast"
/clone_lib="PTB Chimpanzee Male
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GlyAlaLeuLeuAlaAspThrLéuSerVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               clone="PTB-062E12.F"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.0465
140.50
32.73%
29.09%
8.59%
                                                                                                                                                                                                                                                                                                                                                                                        -GCGTCGGGCTGTTGTGGGGCTCCCGGTCGCGTGTGTCCCCTTCCCGTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-1145)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -cecescerececcecrescesceseseserecec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                        -LeuLeuSerPheGlyLeuAlaLeuAlaArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1145
96
12
116
107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BAC Library"
                                                                                             ArgThrG
                                 -eccece
                                                               252
                                                                                                                       232
                                                                                                                                                     315
                                                                                                                                                                                212
                                                                                                                                                                                                                                                                      432
                                                                                                                                                                                                                                                                                                    182
                                                                                                                                                                                                                                                                                                                                                                                        537
                                                                                                                                                                                                                                                                                                                                                                                                                       142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              861
      272
                                264
                                                                                            288
                                                                                                                                                                                                               372
                                                                                                                                                                                                                                        192
                                                                                                                                                                                                                                                                                                                                 477
                                                                                                                                                                                                                                                                                                                                                            162
                                                                                                                                                                                                                                                                                                                                                                                                                                                    585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                712
```

Search Job tim	da	δ	DЬ	Ş	дb
Search completed: October 5, 2005, 18:37:57 Job time : 3532.58 secs	174 CGGGGCCCCCGGGCGCGGGCGGG 151	293 MetGlyProGluLeuAlaAlaGly 300	204 CCGCGCGGGGGCGCGGGCGGT	273 ProGlyGlyCysAspGlyAlaGlyAsnLeuAspGlyValPheGlyGluLeuArgArgLeu 292	